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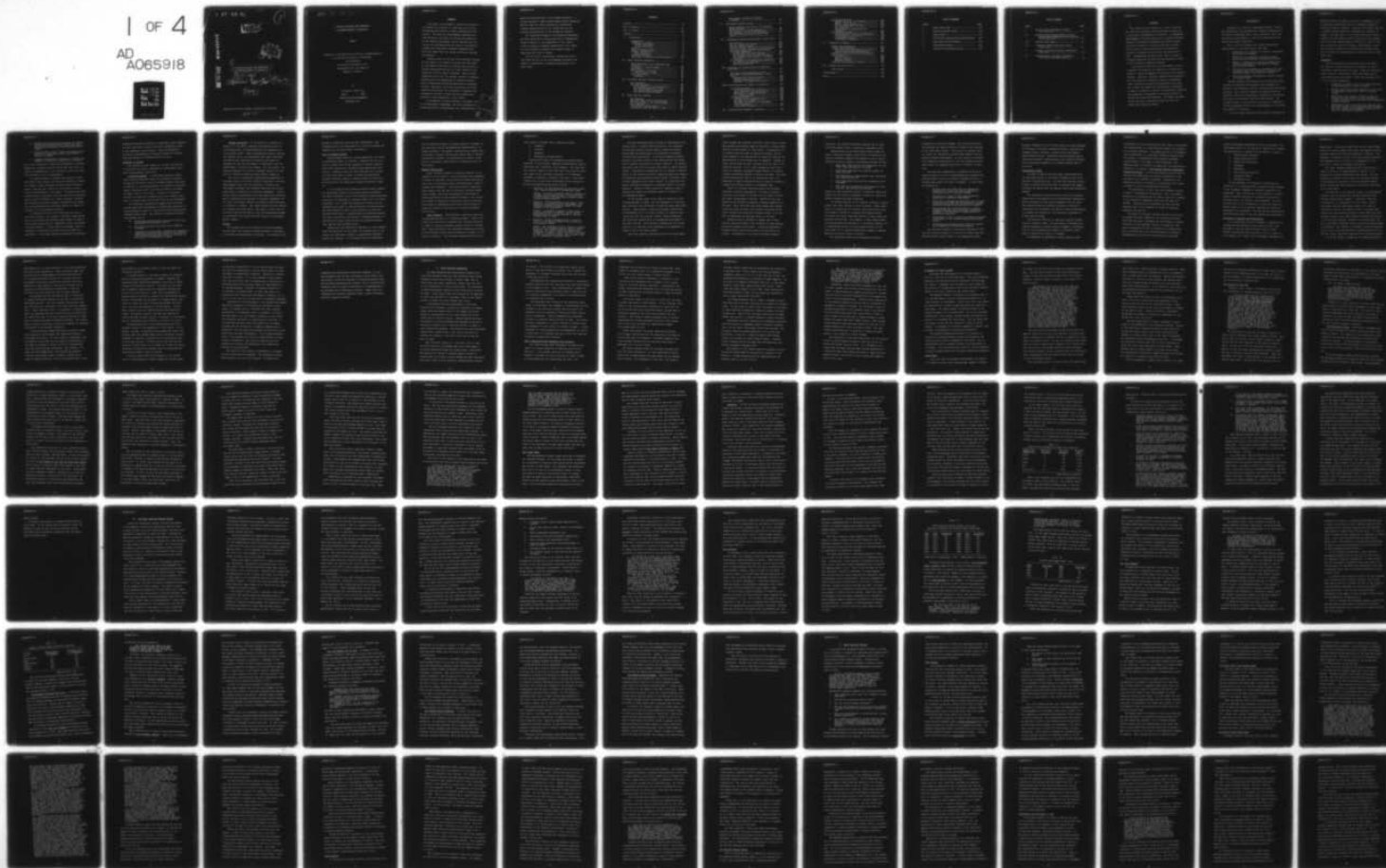
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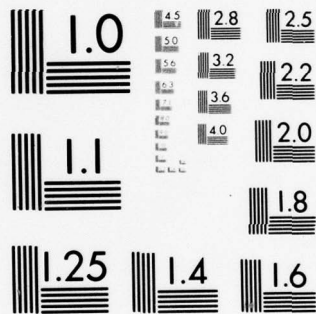
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A CRITICAL ANALYSIS AND COMPARISON
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A CRITICAL ANALYSIS AND COMPARISON
OF SELECTED MODELS OF INFLATION

THESIS

Presented to the Faculty of the School of Engineering of
the Air Force Institute of Technology
Air University
in Partial Fulfillment of the
Requirements for the Degree of
Master of Science

by

Richard E. Johns, B.S.
Major USAF
Graduate Systems Management
September 1976

Preface

This paper is an attempt to report the results of my research on inflation in a way that will be both interesting and helpful to others concerned with the subject. The first six developmental chapters have been written in the style of a historical narrative. As the narrative progresses various analyses and constructs are introduced with the intent of providing a coherent and consistent conceptual framework from which the reader may view current and future monetary developments.

Diverse points of view have been presented throughout the paper in an attempt to insure that the reader is both aware of and able to identify those schools of thought and ideas which may be of most benefit in his particular field or area of interest. Some of those viewpoints are my own, the natural outcome of studying, thinking about and organizing the research material which covered nearly three-thousand years of monetary history. Naturally I am solely responsible for those views and they should not be assumed to represent the thinking or opinions of those who have advised and assisted in the preparation of this thesis.

I am indebted to Captain Charles B. Huelsman, III of the Mathematics Department, Air Force Institute of Technology School of Engineering, who critiqued this

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paper and furnished some of the research material. I am also grateful to Major Carver Sears, Melody Bookwalter and Kim Johns for their assistance in editing the original manuscript and to Dr. Joseph Cain for his stimulating discussions of the monetarist theories.

Dr. Norman Keith Womer of the Economics Department, Air Force Institute of Technology School of Engineering acted as advisor in the preparation of this thesis. I wish to express my deepest appreciation to Dr. Womer for his assistance, patience and valuable lesson in respecting the views of others.

For her help in researching, editing and typing this paper as well as her encouragement throughout the months of preparation, my warmest appreciation to my wife, Becky.

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Abstract

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The purpose of this report is to assist those who must deal with inflation related problems in acquiring a sound basic understanding of inflation. To accomplish this purpose the report begins with a logical-historical treatise of monetary developments and selected experiences with inflation in various historical contexts. The evolution of money and monetary institutions as related to inflation is traced into the first half of 1976. Contemporary monetary crises under a system of floating currencies are discussed and analyzed in terms of the historical background material.

The historical data base thus developed is used as a referent for analysis and comparison of theoretical models of inflation suggested by four schools of economic thought: classical, Austrian, Keynesian and monetarist. The four models are compared in terms of explanatory value, historical accuracy and predictive value. The way in which the models are interrelated is discussed in order to provide an overview of contemporary inflation. Some prognoses by proponents of different schools of thought are quoted and discussed. The report concludes with an inflation forecasting caveat for the cost analyst and financial planner.

I. Introduction

Inflation is a critical contemporary problem. Individuals responsible for organizational financial planning face the task of forecasting costs, price structures, cash flow and capital requirements at a time when these factors are exhibiting unusual instability.

Some of the more apparent and commonly experienced manifestations of recent inflation have been:

1. Significant cost overruns in research, development and production programs.
2. Difficulty in accurately forecasting future operations and maintenance funding requirements.
3. Balance of payments and currency exchange difficulties, particularly in the areas of foreign sales and procurement.
4. Reluctance of contractors to undertake long term projects without the protection of varied, and sometimes complex cost escalation clauses.
5. Rapid fluctuations accompanying a secular uptrend in interest rates.

Private financial data gathering and forecasting firms, correctly recognizing that managers need information on inflation, are marketing inflation forecasting and monitoring services. Thus financial managers and analysts face the additional problem of attempting to estimate the reliability and value of the different services being offered. The potential buyer of such services is not apt to accomplish a realistic appraisal without some understanding of the nature and cause(s) of inflation.

It is now widely recognized that inflation deserves the

Careful attention of nearly all levels of management and is an especially significant factor for managers engaged in long-term financial planning. Certainly individuals required to justify funding requests at Congressional hearings, to engage in foreign trade, or to forecast and monitor costs on research and development projects and acquisition programs, need a thorough understanding of inflation in terms of both basic theory and practical effects. Unfortunately, those who correctly recognize this need and who conscientiously seek to acquire an understanding of inflation, face a formidable task.

Background

The first difficulty encountered by the individual, who chooses to become a student of inflation, is that of selecting a starting point for study. There are hundreds of texts, articles, reports and studies which deal more or less directly with the subject. These fall generally within the following categories:

1. Historical accounts of inflations identified with a particular period, nation or empire.
2. General theoretical models developed in the course of expounding a particular school of economic thought.
3. Models which are strictly limited in their applicability with respect to time, industry or situation and which are often based upon unspecified economic theories.
4. Mathematical models which have been derived from more basic models, are extensively cross referenced and often depend upon assumptions which are difficult to identify and validate.

5. Mathematical formulas and procedures for measuring and forecasting inflation which are often simple moving averages or smoothed-data extrapolations.
6. Eclectic models, many of which incorporate incompatible or inconsistent theory from different schools of thought.
7. Lengthy compilations of factors all of which are alleged to contribute in some way to inflation.

Due to this diversity of ideas and presentations, potential students of inflation may well decide that the subject is either incomprehensible or too involved to merit the study time required for basic comprehension.

If students neglect to perform the extensive literature search which reveals the scope and diversity of inflation models, simply accepting the most readily available source, they are apt to arrive at an erroneous or very limited understanding of the subject. The particular model presented may be applicable only when restricted conditions exist or may be intended for a special purpose. Further, since mutually exclusive premises, assumptions and outputs are often associated with different models, all cannot be equally valid in explaining inflation.

To economize on time, while minimizing the risk of error and confusion, the student of inflation needs assistance in identifying the different basic models in terms of their general applicability, explanatory value, key assumptions and validity. To this writer's knowledge, there is presently no publication available which provides this assistance. Of the many different government and privately

financed publications surveyed in preliminary thesis research, all fell within one or more of the seven categories listed at the beginning of this section. None were designed to provide an understanding of inflation through the critical study and analysis of differing points of view.

Statement of Problem

The problem for this thesis is: To meet the need for a study that will assist individuals in developing a sound basic understanding of inflation.

Problem Refinement. An individual seeking to understand inflation requires access to an extensive reference library and sufficient time for thorough research and study. In addition to these prerequisites, the student of inflation needs a conceptual model or criteria by which to evaluate divergent views on the subject. Creation of evaluative criteria is inherently a demanding and time consuming task. Error or omission may occur at each step of the development.

The foregoing considerations suggest that the thesis problem might best be addressed by identifying prevailing or promising general models of inflation and then analyzing and comparing these models. The refined or derivative problem then becomes one of:

1. Identifying general models of inflation which are predominant or potentially useful.
2. Developing criteria for analysis and comparison of models.
3. Presenting the development, analysis and comparison of models as logically and succinctly as possible while preserving sufficient detail to minimize the probability of misleading the reader.

Problem Limitation. If the product of inflation research is to be useful, dominant considerations must be: the desired level of understanding and the background of the potential users. These considerations require limiting the problem, first, by presupposing user needs associated with particular professional functions, and second, by assuming the user has some degree of familiarity with the terminology of economics and finance. For this thesis, the needs are assumed to be those of managers required to cope with the inflation-related problems listed on page one.

The level of educational background and experience of potential users is the more difficult limitation to satisfy. Some managers faced with the problems of inflation are thoroughly conversant with monetary theory and have accumulated years of experience in financial management. Others, having recently transitioned from line supervisory positions, may be confronting the problems of financial management for the first time without benefit of extensive formal education in economics or finance. The thesis problem has been defined to encompass the latter group. The extent to which the problem scope affects the needs of the more experienced manager is discussed in the section entitled "Scope of the Research Effort" (page 6).

Purpose

The primary goal of this thesis is to assist managers who must deal with inflation-related problems in developing a sound basic understanding of inflation. To accomplish this

purpose, an additional goal has been established. This secondary goal is the development of a critical analysis and comparison of selected models of inflation.

Scope of Research Effort

Thesis research does not include examination of limited or specialized models of inflation. Research has been confined to models which differ primarily in terms of general principles, methodology, assumptions and significant implications. Summary accounts of past inflations are included on a selective basis in order to furnish the real-world reference material needed to compare models for historical accuracy and for the additional purposes discussed on page 12.

It is recognized that numerous potential thesis readers are thoroughly familiar with monetary theory and banking. For these individuals some of the explanatory models developed may seem to be described in excessive detail or to be overly simplified. It is hoped that readers who receive such an impression, will pause to consider whether the simplification has shed additional light on the interaction of man with monetary institutions. Simplification and detailed analysis have been included for the purpose of insuring agreement on definitions and basic points as well as assisting readers less familiar with monetary theory.

Models which are essentially variants of a given general model are mentioned in some cases, but analyzed only to the extent that additional insight or significantly different results are obtained. It is realized that the classifica-

tion of models according to economic schools of thought, or any particular sets of distinguishing characteristics, is rather arbitrary. The general classifications adopted serve to maintain conceptual distinctions rather than to identify individuals or groups. The examination of eclectic views within a conceptual classification is beyond the scope of this thesis.

Research Methodology

Since the major problem in studying inflation is considered to be the lack of a critical analysis and comparison of models of inflation, the refined and limited problem becomes that of identifying models and developing a format of analysis and comparison. Once this process is completed, there remains only the task of devising a suitable presentation format. The basic methodology of this thesis is simply application of the scientific method to the solution of a series of related but conceptually distinct problems. The process of identifying and solving these problems is explicitly traced in the sections on thesis development which follow.

Basic Research. Identification of general models was accomplished by means of a literature search. Texts on the history and evolution of economics were reviewed initially in order to identify different economic schools of thought. Next, texts and articles by individuals espousing the views of the different schools were reviewed for relevance to the study of inflation. The following classifications or econ-

omic schools of thought were ultimately selected:

1. Classical
2. Austrian
3. Keynesian
4. Monetarist (Chicago School)

Scholarly writings by contemporary economists representative of the Austrian, Keynesian and Monetarist schools employ the term "inflation" quite commonly. The term does not, however, appear to have been used in any specific economic sense by the classical economists. It is therefore necessary to identify a classical equivalent. This identification may be explicitly accomplished by the process of posing and answering questions as follows:

1. Question: To what phenomenon is the term "inflation" commonly applied in contemporary usage?

Answer: The term is commonly used to designate an increase in the general level of prices of sufficient duration and magnitude to attract public attention and discussion.

2. Question: Since employment of the term in this manner is a relatively recent development, what alternate expression might be useful for basic research on the phenomenon?

Answer: A sustained increase in money prices of goods and services in general, may be viewed alternatively as a secular decline in the purchasing power of money.

3. Question: Is the purchasing power of money a subject of discussion common to all of the proposed general models?

Answer: The purchasing power of money is treated by all of the foregoing economic schools and is, therefore, the central issue for analysis and comparison of models. Should the term "inflation" be used in a different sense, this uncommon usage must be treated as a separate issue.

Once the purchasing power of money is identified as the central issue, a further difficulty arises. The classical and Austrian economic schools employ a basically similar terminology and methodology in the treatment of monetary functions and institutions. Both schools emphasize earlier periods of economic history in the identification and statement of general principles of economic behavior. The general principles then serve as a basis from which to deduce specific theory. (Variances in methodology will be treated in greater detail in the sections devoted to examining particular models.) The Keynesian and monetarist schools employ a different terminology, emphasize more recent contexts for observation and employ reasonable assumptions to generate models of economic behavior. Clearly a common referent is needed in order to analyze and compare the different models of inflation in any meaningful manner.

If the central issue in the study of inflation is the purchasing power of money, then the appearance of inflation must associate with particular interactions among three basic factors: human behavior, money and monetary institutions. If differences are to be found in models of inflation associated with the four economic schools, these differences must stem from variant views or assumptions with respect to the three factors. Other factors considered by one or more schools to be relevant, must ultimately find expression in terms of one of the basic factors.

Since the classical economists wrote in the late eight-

eenth through the nineteenth centuries, their views of money and monetary institutions might be expected to reflect these factors in forms typical of that period. If anything is to be learned from the study of classical writings, then ensuing changes in the factors must be carefully noted and the ramifications of such changes must be examined. Changes in human behavior may also have occurred since the time of the classical writings. If so, these changes can only be detected by studying contemporary human behavior in economic contexts essentially similar to those of the past. The foregoing considerations lead to the realization that it is necessary to examine monetary history in order to relate and compare the different models in a meaningful way.

There is a further compelling reason for reviewing historical monetary developments: The basic validation criterion of any model of inflation is the extent to which that model corresponds to reality. Reality in this case appears as the relevant documented, monetary experience of the past. While the future may bring changes that render a particular model obsolete, any currently acceptable model ought, through some reasonable thought process, to be capable of explaining the data and events of the past.

Naturally one is reluctant to embark upon a carte blanche historical study of the interplay of human behavior, money and monetary institutions. A thorough treatment of monetary history alone would require the publication of volumes. Fortunately, if one poses the proper research

questions, the relevant historical material can be identified and studied within a treatise of reasonable scope.

Identification of the three basic factors (human behavior, money and monetary institutions) as related to the study of inflation suggests that answers to the following questions should be sought in researching monetary history:

1. What human institutions were responsible for the issue, form and quantity of money?
2. Under what conditions did inflation appear as money evolved?
3. What phenomena of human behavior were associated with these inflations?
4. What significant institutional alterations have occurred?
5. What were the inflationary implications of monetary and institutional alterations?

Answers to these questions require a literature search that ranges from the works of numismatic scholars to current financial journals and news dispatches.

In seeking answers to the research questions, "search models" have been created to serve as guides. These models assist in determining the relevant topics and events among the abundant treatises on monetary and banking history. The models are simply idealized versions of early money and monetary institutions. For example, a "free banking model" has been designed and employed as a conceptual referent, not to demonstrate how well or poorly banks function in the real world, but to identify significant changes in banking practice at various points in history.

The theoretical models are conceptually altered to

correspond to real-world changes. The altered models are then analyzed for implied results in terms of the interplay of the three basic factors. The results of analysis serve as a basis for identifying relevant human behavior and subsequent monetary developments. As this process is iterated with progressive modification of the free banking and monetary models, an integrated data base of inflation is developed.

The data base presentation of inflation serves as an expository device to aid in understanding the classical and Austrian models as well as a factual standard by which to validate and compare the models in general. It also serves the purposes of:

1. Familiarizing the reader with the operational terminology of money and banking employed by different schools of economic thought.
2. Assisting the reader in developing historical perspective in monetary developments.
3. Recapturing knowledge and experience from the past which may have become lost in subsequent economic treatises through misinterpretation or omission.
4. Demonstrating the recurrent nature of certain monetary phenomena thus permitting a qualitative judgment on the constancy of human behavior in particular situations.
5. Progressing in both a logical and temporal sequence from simple to more complex monetary and banking models.
6. Presenting and relating recent (1970-76) domestic and international monetary developments.

The literature search for the period beginning in 1970 has been confined primarily to the New York Times Index and The Wall Street Journal Index for the appropriate years.

Relevant information is to be found under such entry headings as the names of prominent monetary officials, international monetary crises, inflation, consumer prices and Federal Reserve Board actions. Statistical data and graphs depicting various economic indicators have been obtained primarily from publications prepared by the Federal Reserve Bank of St. Louis.

Presentation Format

In order to realize the previously listed benefits of the data base portion of the thesis (Chapters II-VII) this material is presented first. The data base chapters develop a kind of logical-historical model of inflation and suggest questions and issues which the general models may subsequently address.

The classical and Austrian schools both view monetary theory from a free market or non-interventionist perspective. While economists of both schools recognize that the state has practiced (and will doubtless continue to practice) intervention in the market, the effect of these interventions is treated with reference to the theoretical operation of a free market economy.

The Austrian views are, in part more rigorous elaborations of classical views. The similarity of treatment and logical progression of these schools, suggests a classification of "non-interventionist models of inflation" within which to present both schools of thought.

The Keynesian and Monetarist schools advocate state

intervention in the economy and thus fall within the contrasting classification of "interventionist models" for purposes of conceptual treatment. The degree and form of recommended state intervention is a principle difference between these two schools, a consideration which further recommends classification on the basis of interventionism. The Keynesian model of inflation is based upon the propositions stated by J. M. Keynes in The General Theory of Employment, Interest and Money. In this work, Keynes critiqued what he perceived as deficiencies and special assumptions in the writings of the classical economists. Consequently the Keynesian position on inflation is presented as the logical successor to the non-interventionist position.

The monetarists, in turn, have been somewhat critical of many of the Keynesian propositions. Also, the growing popularity of monetarism may be viewed in part as a reaction to the dominance of Keynesian ideas over the past four decades. Consequently the monetarist position has been presented last in the treatment of models of inflation (Chapters VIII and IX).

The models of inflation derived from the four schools of thought are first related to the context within which they were developed. Statements by the founders or eminent proponents of the different schools of thought are then used in presenting the set of assumptions or propositions which constitute the fully developed models of inflation. Recommended policies as well as predictions concerning

future inflationary developments are also considered. The development portion of the thesis is completed by a chapter devoted entirely to comparison of the models in terms of:

1. Methodological Soundness
2. Common Characteristics
3. Significant Differences
4. Strengths
5. Weaknesses
6. Historical Applicability
7. Explanatory Value
8. Predictive Value

In any treatment of a subject as controversial as inflation, it is important that the reader be kept informed of the conceptual framework or reference employed by the researcher. Many treatises allow this reference to remain implicit thereby obscuring the conceptual and selective processes which, of necessity, were exercised. An effort has been made in this presentation to keep the reader constantly aware of the conceptual framework from which the presentation is proceeding. The next section introduces the underlying philosophy of both the research and presentation.

Philosophy of Research and Presentation

It is practically futile to attempt to understand the contemporary inflationary context unless one has a fair knowledge of how the present situation came to exist. Present circumstances have come about, not in a single obvious change, but in small subtle increments extending over

generations. A case can be made that, had the evolutionary process not been so gradual and subtle, the present monetary situation might never have been permitted to develop. Consequently, the general models can be realistically evaluated and compared only on the basis of an examination of the evolution of money and monetary institutions.

One cannot compare abstractions with abstractions in order to arrive at an understanding of reality. It is necessary to compare abstractions with reality. The subsequent six chapters of this thesis are therefore devoted to describing the realities of the evolutionary process. These chapters have been referred to in previous discussion as the "data base."

The data base is an essential element in understanding inflation that is missing from the many scholarly works reviewed during thesis research. Inevitably, there are irrelevancies in a presentation of this scope. Before concluding that some particular element in the base is irrelevant, however, the reader is urged to consider that element with the following question in mind: What does this treatment reveal, about human behavior patterns with respect to the existing political, economic, and institutional context, that might ultimately lead to an improved understanding of inflation? The question is intended to include consideration of the motives and attitudes of participants as well as the more easily identified human activities and institutions.

To aid the reader in answering the foregoing question,

participants in, or close observers of, the events described have been quoted extensively. These quotations range from the time when the Roman Emperor Diocletian described one of the earliest recorded inflations, to present day pronouncements by national monetary and political officials. Parallels in human behavior, beliefs and attitudes are as essential in understanding the interaction of man with institution as any statistical data one might assemble.

Increasingly specific statistical data is introduced to augment descriptive material as the stage of historical development permits. The more elaborate and specific economic indicators are presented in the final data base chapter (VII). These indicators serve to illustrate, in quantitative form, the phenomena previously identified and to familiarize the reader with some of the data currently relevant to treatment of inflation-related contemporary problems. The contemporary context of attitudes, motives and behavior is presented and related to the economic indicators.

It was previously stated that simple conceptual models were employed as both research and expository devices in developing this thesis. If such a model is reasonable, then one expects to find that results implied by alterations to the model are similar to actual effects of corresponding real-world institutional alterations. For instance, if a model has been formed which, upon theoretical analysis, indicates that bankers ought to behave a certain way in order to maximize profits, it would be disconcerting to find

that bankers do not actually behave in that way under the conditions specified.

At certain points in the thesis research the foregoing kind of disconcerting experience occurred. Evidence contradicting model predictions appeared in the form of widely accepted "authoritative opinion." The basis for the model was re-examined together with the subsequent analysis and no error could be detected. Under these circumstances a modeler might be inclined to present the theoretically implied results, acknowledge the existence of contrary opinion, and leave for others the task of discovering whether the fault lay in the model and analysis or in the opinion. Of what value, however, are such implied results when reported to others? The modeler ought to show that his results are correct and that contrary opinion is erroneous or the results must be considered a pure assertion of little or no value.

Avoiding assertions of the foregoing kind has been a dominant concern in the preparation of this thesis. At the expense, perhaps, of presenting more background, detail and analysis than some readers might believe justified, evidence necessary to support a contradiction of authoritative opinion has been provided. Contrary opinion has also been employed at certain points in the thesis as a device for detecting error in theoretical analysis and for delineating the appropriate research topics to explore.

A writer usually does not contribute to the current state of understanding or benefit readers by listing scores

of opinions by authorities. This is particularly true when the topic for examination is one upon which there is a wide divergence of authoritative opinions. Inflation is exactly this sort of subject. It is also inherent in the subject that the most subtle shift in terminology or viewpoint can profoundly effect the resultant degree of understanding or of misunderstanding. Therefore in studying inflation, it is important to preserve what, at times, may seem to be excessively fine distinctions and shades of meaning. To do less is to run the risk of gross error in subsequent analysis.

Frequently in the development of the monetary and banking data base, phenomena or situations are described in this thesis in a manner which is different from that commonly encountered in contemporary texts on economics. An effort has been made to call the reader's attention to such deviations whenever any matter of significance is involved. It is hoped that at these points the reader will not simply conclude that the writer has a strange or awkward mode of expression, but will pause and consider how the point of view shifts with the mode of expression. If a clearly different point of view emerges as a result of modifications in terminology or description, then the new viewpoint should be examined for accuracy and explanatory value rather than rejected as unconventional.

The reason for this careful consideration of uncommon points of view should be apparent. The existence of worldwide inflation is a fact and a problem. If widely held

viewpoints and conventional wisdom were adequate, the problem probably would not have developed or would shortly have been solved. Since the problems of recurring monetary crises and declining purchasing power persist, new or unconventional viewpoints must be sought in arriving at an understanding of the problems and in developing solutions. Under these circumstances few carefully expressed ideas, however unorthodox, should be casually rejected.

II. Early Monetary Background

The Chase Manhattan Bank Money Museum displays more than fifty-thousand items that have served as money during different periods from ancient to modern times. Most of these items are simply commodities, things which are used in the satisfaction of various human wants. The durability of money was greatly improved by the introduction of metals as money. Crude copper rings were employed by the Egyptians in about the year 2500 B.C. and small cubes of gold became popular in China some three-hundred years later.

A significant technical improvement in money was achieved by the Lydians, a people who inhabited the coastal region along the western shore of the Aegean Sea and who served as intermediaries in the trade between the Greek cities and the Asiatic interior. Lydian traders developed the practice of placing standardized markings on pellets of electrum--a natural alloy of gold and silver--in order to avoid repetitious weighing. The practice was later officially adopted when a Lydian king, in the seventh century B.C., ordered the striking of the first coins ever to bear the seal of state.

Near mid-sixth century B.C., the first coins of pure gold were struck by the Lydians and silver coins began to circulate extensively among the Ionian Greeks. Thereafter, the practice of casting or striking pieces of metal of known purity into units of uniform weight and then imprinting them with a sign of state authority, spread rapidly through-

out Greece. The invention of coinage was a major contribution of the early Greek civilization, for it marked the beginning of a monetary technique and policy that persists to this day (33:10-11).

Numismatists have reported the existence of fraudulent monetary practices from the time when coins were first minted to the present (75:42). Coin counterfeiting, clipping and metallic substitution are different forms of what has come to be known as debasement, the reduction of monetary metal in a standard unit of money.

Had debasement been confined to the relatively small number of individuals, who engaged in counterfeiting or coin clipping in any particular society and time period, the phenomenon would be unworthy of further discussion from an economic standpoint. However debasement has repeatedly occurred on a massive scale as an act of state. This state-sanctioned debasement is closely related to inflation from the standpoint of some schools of economic thought. A brief examination of early experiences with debasement will serve, in particular, to illuminate the way in which the classical economists thought about inflation.

Early Experiences With Debasement and Inflation

The first recorded major debasement occurred as the result of a decree issued by the Athenian ruler, Solon (594 B.C.). This decree, known as the "Shaking Off of Burdens," included a de facto reduction in silver content of the monetary unit by twenty-seven per cent. The

debasement was accomplished by simply allowing debt, denominated in standard units, to be satisfied by payment in existing coin of a lesser weight of silver (33:16).

Very little reliable information is available on the results of this debasement and it appears to be a unique event in the Greek monetary experience. Subsequently, the Greeks conscientiously maintained both the weight and purity of their coinage which circulated widely in trade from North Africa to Asia Minor.

The actual weight of pure gold or silver in a coin was of great importance to Greek traders. If the intrinsic value (value of the monetary metal contained in a coin) fell too far below the face value (certified weight) through wear or deliberate tampering, the coins were accepted only at a discount. This discount usually appeared first in foreign lands where the issuing government could not force acceptance of the coins by people who expected full weight in monetary metal (75:32).

Unlike the Greeks, the Romans experienced problems with coinage continuously from the beginning of the Republic to the final days of the Empire. The Roman experience provides monetary scholars with an excellent case study in debasement as a policy of state.

The Romans employed copper as the basic monetary metal until the third century B.C., in that period Rome issued a silver coin of approximately the same weight as the standard coin of Greece. The debasement of this coin, the denarius,

has been studied extensively by numismatists who specialize in ancient coins. Their studies show that the denarius, originally issued as a coin of 99 per cent pure silver, was progressively debased by a succession of Roman emperors. By the time of the Emperor Diocletian (300 A.D.) it had become simply a copper wafer lightly washed with silver. These coins were quite similar to the "clad" coins introduced in the United States in 1965, but the latter are coated with nickel rather than silver (75:31-61).

The debased denarius was no longer a standard of monetary metal since its face value was far in excess of intrinsic value. It was merely a "token" which circulated on the basis of laws requiring acceptance of tokens in payment for goods and services. Laws of this kind have become known as legal tender laws and are an accepted feature of modern societies.

Researchers who have studied price information available from this period of debasement report continuous increases until, by the time of Diocletian, prices were soaring. The situation finally provoked sufficient civil unrest that Diocletian, in 301 A.D., issued his famous price-fixing decree in an attempt to pacify Roman Citizens. Detailed lists of maximum prices and wages were published and prominently displayed throughout Rome.

The preamble of this decree reveals the manner in which Diocletian acknowledged the existence of inflation to the populace. Professor Frank Abbot has translated from the original Latin as follows (75:66):

Who is of so hardened a heart and so untouched by a feeling for humanity that he can be unaware, that in the sale of the wares which are exchanged in the market, or dealt with in the daily business of the cities, an exorbitant tendency in prices has spread to such an extent that the unbridled desire of plundering is held in check neither by abundance nor by seasons of plenty....

Undeniably, someone was being plundered; but who, and by whom? Nowhere did the text of the decree hint that the State, in manipulating the quantity and quality of coinage, may have been in the least responsible for the dramatic decline in the purchasing power. Inflation was recognized as an "exorbitant tendency in prices" and as unmitigated "by abundance or seasons of plenty" but the Roman citizen remained unenlightened on the probable cause of the problem. Yet Diocletian surely knew that, even before he came to power, Roman silver money was no longer accepted in trade beyond the lands under strict Roman control. What foreign trade remained to Rome was made possible by the use of undebased Greek silver coins or by gold (74:60). For some reason, Diocletian felt it impolitic to remind the Roman people of the condition of their coinage.

The implication of the decree was clear: if the citizens would not accept debased coinage at full face value, the State would impart value by force. It is probably no accident that the Roman military wage rate was maintained at a relatively high level during this period. Apart from any external threat, the loyalty of the soldiers was needed to effect such a plan.

An Example of Sound Coinage

Following the disintegration of the Roman Empire in 476 A.D., came the so-called Dark Ages. With one outstanding exception, the monetary situation throughout the Dark Ages was chaotic. Debasement was considered a royal prerogative and rare was the feudal prince who did not routinely transfer wealth to the royal coffers by this subtle fraud.

The Byzantine Empire, consisting of the eastern half of the old Roman Empire, was the outstanding exception to the common practice of debasement. There a gold coin, the bezant, was maintained at constant weight and purity for eight-hundred years. The bezant became the accepted medium of exchange throughout the civilized world. Due to the universal desirability of the bezant, foreign traders were anxious to acquire it in exchange for their goods. Once the money left the empire, it was used for hoarding or trade by native peoples. In England, for instance, payments in bezants, were routine in transactions involving gold (33:48-54).

The Byzantine Empire proved that it is possible to establish an enduring monetary system and prosperous commercial society without debasement by the state. This accomplishment stood in marked contrast to the experience of the Romans. The latter were never able for long to establish a stable monetary system and the people suffered accordingly.

Paper Money

As in the case of gunpowder and printing, the Chinese of a period at least seven centuries ago, appear to deserve

the credit for the first use of paper as a monetary instrument. The best known account of the money system which existed in China was provided by Marco Polo, the Venetian traveler. Upon his return to Venice in 1295, Marco Polo wrote (75:305):

The Emperor's mint then is in this same city of Cambaluc (Peiping), and the way it is wrought is such that you might say he has the secret of alchemy in perfection....When these sheets (of paper) have been prepared they are cut up into pieces of different sizes...All these pieces of paper are issued with as much solemnity and authority as if they were of pure gold or silver; and on every piece a variety of officials, whose duty it is, have to write their names, and put their seals. And when all is prepared duly, the chief officer deputed by the Khan smears the seal entrusted to him with vermilion, and impresses it on the paper, so that the form of the seal remains printed upon it in red; the money is then authenticated...Anyone forging it would be punished with death...With these pieces of paper, he causes all payments on his own account to be made; and he makes them to pass current universally over all his kingdoms and provinces and territories, and withersoever his power and sovereignty extends. And nobody, however important he may think himself, dares to refuse them on pain of death.

The question which naturally arises is why didn't the Emperor simply have his men seize whatever he needed rather than go through this roundabout process of paying bills with paper of arbitrary value? One can only speculate that patent theft would have created such a degree of civil unrest that even the power of this tyrant would have been threatened. The ceremony tended to divert attention from the confiscation and to demonstrate that the emperor would limit his issues to some "reasonable" amount.

The important point to be made is that this paper money

was clearly not a natural product of market operation. Whatever purchasing power it possessed was due to the Emperor's life or death power over his subjects. Despite the absolute authority of the ruler in that society, the system lasted only about seventy years and ended in the first recorded paper money hyperinflation. As is typical of such inflations, the established monetary system and the government fell at the same time (75:305-6).

Paper money first came into use on the European continent in the form of bank notes which appeared in Italy shortly after the turn of the thirteenth century. These were promissory claims on gold and silver payable on demand at the bank of issue. Almost concurrently, government promissory notes began to circulate in Amsterdam as a substitute for coins (33:119-20).

The first paper money to appear in England is attributed to the goldsmiths of the seventeenth century. Because of the high risk of keeping valuables on hand during the Puritan Revolution, many of the nobles had adopted the practice of leaving their money in the care of goldsmiths who possessed superior safekeeping facilities. In exchange, the depositors received what were in effect warehouse receipts for their money and paid a storage charge. These receipts were not legal tender in the eyes of the state, but nevertheless circulated in payment for goods and services as a matter of convenience and safety (33:120).

With the appearance of paper money in Europe, the stage

was set for a European experiment with paper money inflation. Credit for this experiment goes to John Law, the son of a Scotts goldsmith, for Law was among the first to appreciate the full potential of paper money.

The Theories of John Law

Professor John J. Klein, in writing of John Law and his contribution to monetary analysis, said (42:274-75):

John Law, aside from his reputation as a romantic adventurer, financier, and organizer of the Banque Royale in France, is best known as the author of Money and Trade Considered (1705). Writing in a period of high unemployment, Law argued that trade depends upon money. Hence, the more money there was in the economy, the more likely we are to have full employment...The more "credit money" in circulation, he said, the more people will be employed. In a period of less than full employment, how would the monetary authority get more money into circulation and hence induce a higher level of employment? Law reasoned that the best way is through the issue of paper currency by banks. He did not propose an unlimited issue of paper currency, but a limited one suited to the needs of trade. Thus, there would be no danger of over-extending currency....

This description of Law and his ideas is typical of those found in textbooks which treat monetary history. While what is said is accurate, almost without exception, modern writers omit the most important of John Law's accomplishments. Law was one of the few economists (along with J. M. Keynes) to have his ideas implemented as a national experiment and to actually supervise that experiment. When this experiment fell short of expectations, it was repeated only seventy years later. Had Law been alive at that time, he

would have witnessed the confirmation of his original results and might have marveled at the persistence of his ideas. Indeed, perhaps Law's ideas persist, in somewhat more sophisticated guise, even today.

As J. M. Keynes observed (73:1):

The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist.

Probably to no other economist in history (with the possible exception of Smith, Marx, and Keynes) is this observation so applicable as to John Law. The results of Law's ideas and experiment are quite relevant to the study of inflation, for among the many recorded post-Renaissance inflations, Law's so-called Mississippi Scheme was one of the first and most impressive examples.

The Mississippi Scheme. When France's profligate king died in 1715, the Duke of Orleans assumed government leadership as Regent. The finances of the country were in sad condition with national debt amounting to three-billion livres (now francs). The yearly expenses of government amounted to 142 million with revenues of 145 million so that only 3 million livres remained to pay the annual debt interest.

As a first measure toward alleviating these problems, the new Regent debased the coinage by twenty per cent, gaining seventy-two million livres in the process. This debasement

caused disruption in commerce of France, but people were quieted by a slight decrease in taxes. At this point, John Law, a former friend and confidant of the Regent presented himself at court and argued that the evils which had befallen France were the result of both the shortage and the debasement of money. He proposed setting up a bank, to be administered in the Regent's name, for the purpose of restoring the credit of France. This bank would manage the royal revenues and issue notes on the basis of these revenues and royal landholdings.

The Regent was persuaded and in 1716, a royal edict authorized Law to establish a bank, the notes of which could be used in payment of taxes. The capital of the bank was fixed at six million livres consisting of one and a half million in specie (coin of the realm) with the remainder in state notes.

Law immediately announced, in a well publicized statement, that any banker, who issued paper without the necessary specie to pay on demand, deserved death. He then established, as a policy of the new bank, that all notes would be payable on sight in coin current at the time the notes were issued. Such a policy, if honored, meant that holders of the notes no longer need fear debasement by the state. Consequently, the notes immediately began to exchange at a one per cent premium over specie. By the end of the first year, the notes were selling at a fifteen per cent premium at the same time government bills were being discounted approxi-

mately eighty per cent in terms of specie.

The Regent was favorably impressed and gradually came to believe that paper notes might well supplant coinage. As a result, the Regent favored Law's bank with monopolies in several areas of commerce and redesignated it the Royal Bank of France.

As soon as the bank became a royal establishment, the Regent ordered the issue of an additional billion livres in bank notes. Since Law had by this time achieved a reputation as a master of finance, and industry and trade had begun to increase, this and subsequent issues of paper were well received. However, some members of Parliament were dubious of both Law and the wisdom of issuing bank notes. Such opposition was soon quelled by the arrest of the President and two councillors, who were sent to distant prisons. Also, the Chancellor was replaced by a man more amenable to the Regent's wishes.

Law, who seemed to have forgotten his own words concerning the appropriate fate for bankers guilty of issuing excessive notes, continued to assist by sanctioning the Regent's every action. In return, Law obtained the privilege of establishing a company which was to have the exclusive privilege of trading on the great Mississippi river and in the province of Louisiana. In 1719, an edict was published, granting to Law's Mississippi Company the exclusive privilege of trading to the East Indies, China, the South Seas, and to all the possessions of the French East India Company.

Law issued two-hundred and fifty-thousand shares in his new company and promised to pay an effective dividend of twenty per cent. So great was his reputation, that the shares were quickly sold and began to climb rapidly in price. Subsequent issues of stock were made and the French public, aware of how well the first issue had performed, hastened to subscribe.

The Regent had, by the end of 1719, become convinced that a system which produced such prosperity could never be carried to excess. Fortunes were being made throughout the country and the Regent and Law were the subjects of praise and poetry. Paris became a center of elegance and luxury. Art objects and commodities poured in from foreign countries. Luxuries that had previously been enjoyed only by the nobility became commonplace among the middle class.

The Royal Bank of France continued to issue notes and the stock of the Mississippi Company soared. A general opinion arose that the secret of abundance had finally been discovered and prosperity would last forever. The most unpopular citizens of the time were those rare senior statesmen and members of Parliament who warned that France was in imminent danger of bankruptcy and chaos. These few, faced with constant derision, gradually learned to keep silent and began to look to the preservation of their own estates.

Most of the population were convinced that, since the bank notes were convertible into Mississippi Company stock

at a specified exchange rate and the stock represented ownership of vast mineral and productive resources in the New World, there could be no question of the soundness of the financial structure. The resources of France had been monetized in accordance with Law's ideas and, when put to work, this liquid capital must bring abundance to all, or so it was thought at the time.

The first small sign that all was not well appeared in early 1720 when a wealthy nobleman sent three wagon loads of notes to the bank and demanded payment in coin. Law, aware of what might follow if others decided to imitate this act, appealed to the Regent for help. The latter, perceiving the danger, ordered the nobleman to pay back two-thirds of the coins withdrawn or suffer the royal displeasure. This strategy succeeded and a major challenge to the soundness of the bank was averted.

Some of the more astute financiers, however, became wary of the growing speculation, and quietly converted bank notes into coins which were then transported to England and Holland. Many farmers and tradesmen must also have become distrustful for they hid or buried coins about their property. As a result of this surreptitious coin hoarding, a sudden acute coin shortage developed and people began to complain about the difficulty of conducting small transactions.

Determined to alleviate the coin shortage, the Regent first consulted Law and then issued an edict reducing the value of coin, in terms of paper, by five per cent. When

this brought no change, the depreciation was increased to ten per cent and bank payments of specie were restricted to one hundred livres gold and ten silver.

At this time a noticeable increase in all prices took place. The rise was particularly apparent in the financial districts of Paris where rents increased to twelve times the rates existing in more tranquil times. Mississippi stock sometimes advanced ten or twenty per cent in the course of a few hours and labor became expensive as workmen and servants quit their tasks to become speculators and brokers.

The coin shortage persisted until nearly all coins disappeared from circulation and trade almost ceased. In desperation, the Regent issued an edict forbidding any person from having more than five hundred livres in coin in his possession under pain of heavy fine and confiscation of all sums discovered. It was also forbidden to buy up jewelry, silverware, or gems and informers were encouraged to aid in the search for offenders by the promise of a one-half share in resultant confiscations (47:1-30).

The effect of this decree is best described in the words of the British author and journalist Charles Mackay (47:30-31):

The whole country sent up a cry of distress at this unheard-of tyranny....The privacy of families was violated by the intrusion of informers and their agents. The most virtuous and honest were denounced for the crime of having been seen with a louis d'or (gold coin) in their possession....Coin, to any amount above five hundred livres, was an illegal tender, and nobody would take paper if he could help it. No one knew to-day what his notes would be worth to-morrow...It is inconceivable to those who look back upon them now as on a dream,

that a sudden revolution did not break out-- that Law and the Regent did not perish by a tragical death. They were both held in horror, but the people confined themselves to complaints; a sombre and timid despair, a stupid consternation, had seized upon all, and men's minds were too vile even to be capable of a courageous crime.

The picture Mackay paints is one of a people utterly demoralized and of a relatively free society turned into a police state. The value of Mississippi stock had shrunk to nothing along with the purchasing power of notes issued by the Royal Bank of France. No amount of subsequent coercion on the part of a desperate tyrant succeeded in raising the value of the paper which had been issued with such abandon, and goods could only be obtained by force or a surreptitious offer of specie. Formal recognition that the monetary system had failed came in October of 1720 with a decree that the notes of the bank were no longer legal tender, and that payments must be made with gold or silver (47:30-31).

Fiat Paper Money

By mid-eighteenth century, paper money was in extensive use throughout Europe. In most times and places it served as a substitute for precious metal deposited with goldsmiths and private or state banks. The temptation was always present, as in the case of the Mississippi Scheme, to issue substitutes in excess of the precious metal in storage. But when too many notes were in circulation, depositors tended to become suspicious and precipitated a "run" on the bank. If the resultant demand for specie were too great,

that is, if more notes were presented than could be redeemed, the establishment usually failed with losses to the depositors last in line to present their claims.

The thought must have occurred to many that if paper money were not a claim upon precious metals, but could be made to circulate on the basis of state decree (fiat) or mutual agreement within a society, then precious metals could be diverted to non-monetary uses. An interesting study in the application of this notion was provided by the French nation only seventy years after the collapse of John Law's Mississippi shares and the Royal Bank of France.

Probably the best account of this experience in the use of "fiat money" is that of Andrew Dickson White, a founder and the first president of Cornell University. White studied the official documents and contemporary accounts of the French experience and later published his own account in a classic essay entitled Fiat Money Inflation in France (85).

White's study is of special significance, since it was originally delivered as a lecture before the House of Representatives and Senate of the United States in 1876. At that time the United States was still on a fiat money standard as a result of resorting to Greenbacks (page 52) as a means of financing the Civil War. White's study was perceived by some congressmen to have relevance in this debate in view of the close parallels that could be drawn between the French economy of 1790 and that of the United States at the close of the Civil War (85:7-9). One hopes to gain from a study

such as White's a recognition of general parallels and patterns of human action on the often useful premise that history tends to repeat.

Assignats. In 1789 the French "National Assembly" was formed, and promptly declared that France would henceforth be governed by a constitution. France was, as in 1719, deeply in debt and experiencing serious deficits. Proposals arose in the National Assembly calling for the issue of paper money as a way of "securing resources without paying interest" (85:24). Some argued that the business stagnation was caused by a scarcity of coins and therefore, paper money should be made legal tender. Also, such a money would bind citizen's interests more closely to the public good than would metal coins which were not so controllable or intimately tied to the welfare of the government.

Naturally there were those who recalled the Mississippi Scheme of John Law and raised the spectre of a possible reenactment of that dismal experience. In answer to this warning, proponents argued that times and circumstances had changed, that France had become a nation with a constitution, governed by the will of the people rather than the whims of a capricious tyrant. It was also asserted that the paper of John Law had actually achieved its purpose of restoring prosperity and ultimately failed only because of abuses made possible by despotism. Some argued that the Mississippi Scheme had taught France a valuable lesson in limiting the quantity of paper issued so that it was inconceivable the

previous error would be repeated.

As part of revolutionary reform, land belonging to the Church was seized. Since the Church had originally owned approximately one-third of the entire real property of France, the market value of the seized land was sizable. Paper money proponents finally won the debate by proposing that this land serve as backing for the notes to be issued. Notes would be issued for the purchase of land, thus limiting the quantity of paper to the value of nationalized land available.

With the debate won, passage of a bill brought the first issue of four hundred millions of livres in paper money early in 1790. This sum was issued in assignats--notes secured by a pledge of productive real estate and bearing interest to the holder at three per cent.

The National Assembly duly issued a statement asserting that the new currency would bring back prosperity not only in the public treasury, but in all branches of industry and commerce. The people were also assured that the terrible evils resulting from John Law's notes would be avoided because the new money not only possessed a value derived from national authority, but a real and immutable value derived from land that would enable it to compete with the precious metals.

At first, the result of the assignat issue conformed to the most optimistic expectations. The treasury was relieved, a portion of the public debt repaid, and credit

revived. With the passage of the assignats into the hands of the people, trade increased and those in debt found it easier to meet their obligations. Only five months after the initial issue, however, the government had spent the last of the assignats and was again in difficulty.

Soon the previous financial problems began to reappear and a public outcry arose concerning the shortage of money. Speeches were made in the National Assembly urging a further issue of assignats. It was pointed out that none of the dire predictions made by those opposed to paper money had in fact been borne out. Indeed, the results had proved most beneficial. One powerful former opponent of paper money declared that his initial reluctance had been vanquished by the apparent serviceability of the assignats and that there must be one more large issue of paper, guaranteed by the national lands and the good faith of the French nation.

Many declared that gold would shortly lose all value since future exchanges would be made with this admirable, guaranteed paper. Therefore coins would come forth from the hiding places into which they seemed to have disappeared. An influential newspaper of the time treated with contempt the notion that gold was needed as backing for currency and extolled real estate as the only true basis for money (85:46).

Under mounting public pressure the National Assembly passed a bill authorizing the issue of eight hundred million new assignats, but solemnly declared that the entire amount in circulation would never be allowed to exceed one billion

two hundred million. The bill also provided that the new issue would bear no interest and assignats paid to the treasury for land would be burned upon receipt (85:25-47).

As one might suspect, the new issue also proved inadequate for the long term needs of government and commerce. It was followed by another, and then another until, by 1796, forty billion assignats were in circulation. The new issues came at irregular intervals and in varying amounts, depending upon the needs of the moment and the resolution of political conflicts (85:113-16).

After 1791 each additional issue brought a rapid escalation in prices. The typical price performance data presented in Table I enable one to appreciate the economic forecasting problem faced by the French investor or tradesman.

Table I.
Typical Price Increases in France from 1790-1795

<u>Market Item</u> <u>(market lot)</u>	<u>1790 Price</u> <u>(francs)</u>	<u>1795 Price</u> <u>(francs)</u>	<u>Increase</u> <u>(%)</u>
Flour	2	225	11,150
Butter	14	560	3,900
Shoes	5	200	3,900
Hat	14	500	3,470
Gold (coin)	25	1200	4,700

(Data Source: 85:88-89)

Table I also suggests why gold coin disappeared from circulation early in the inflation. The original twenty-five franc coin maintained purchasing power so that the owner's savings were effectively protected from assignat

depreciation. Evidently many citizens anticipated this development.

Now that the background and mechanism of this fiat money inflation have been described, it is helpful to conclude this section by listing some of the phenomena and consequences noted by White (85:71-110):

1. Arguments against the issue of fiat money were presented before the National Assembly, in public debates, and through signed or anonymous pamphlets. Most were not satisfactorily answered--simply ignored.
2. Trade and employment increased for a time after the early issues of assignats. Before long, however, both began a rapid decline toward pre-issue levels.
3. Coins of silver, gold, and finally, copper disappeared early in the inflation. In spite of efforts to reestablish specie circulation by coining confiscated metal--even to the point of melting down church bells--coins remained hidden or were smuggled to other countries.
4. Despite official declarations that gold and silver had been rendered obsolete and replaced by a superior paper currency, the precious metals were hoarded and maintained their relative purchasing power throughout the inflation.
5. Although the quantity of assignats increased rapidly, the populace complained of a chronic shortage of money.
6. As inflation progressed, manufacturing and commerce began to collapse resulting in a large increase in unemployment. Due to increased competition for jobs, a decline in wages occurred despite a rapid rise in goods prices.
7. As manufacturing and commerce collapsed, speculation in land, stocks, and commodities increased. The professional speculator often prospered while the ordinary buyer lost purchasing power. The rich were able to protect themselves by means of their own financial acumen and by using their status to obtain large amounts of credit. By the end of 1795, the paper money was almost exclusively

in the hands of the working classes and small tradesmen whose wealth and credit were insufficient to procure stores of commodities or land.

8. Corruption grew in government circles as it became necessary to buy official protection or privileges in order to prosper.
9. With each issue of assignats, the idea grew that the needs of government might be met by means of paper currency; that taxes might be dispensed with.
10. Government regulation became increasingly harsh and restrictive. By 1792, price controls were in effect and in 1793, it became illegal to differentiate between paper and specie in trade under penalty of heavy fine. Later in 1793 the penalty was changed to death. In 1794, it became a guillotine offense to ask, before a transaction was concluded, in what money payment was to be made. In the end, however, all of these measures proved of no avail and assignat purchasing power vanished.

When Napoleon Bonaparte came to power in 1799, the economy of France was in ruins; the government bankrupt and an immense debt unpaid. The further collection of taxes seemed impossible. At the first cabinet meeting, Bonaparte was asked what he intended to do. He replied, "I will pay cash or pay nothing." (85:110)

At a later time, when the Empire was at war with the first great European coalition, someone proposed that Napoleon meet his pressing financial obligations by issuing paper money. In reply, he wrote to his minister, "While I live, I will never resort to irredeemable paper." He never did and when war subsequently came to French soil after the Battle of Waterloo, despite heavy expenses for war and indemnities, France remained on a specie basis and experienced no problems with her monetary system (85:111).

The early French experiments with money afford an opportunity for some observations that may have relevance even in the modern world. It is noteworthy, for example, that in the case of the Mississippi Scheme, a currency convertible into specie was eagerly accepted by the public and served quite well until it was issued in excessive quantities. Over-issue was accompanied by the disappearance of specie from circulation, increasing speculative activity in stocks and gradually increasing prices. When it became clear to the French public that excessive issues were likely to continue, the paper currency lost purchasing power rapidly and eventually ceased to circulate altogether. All of this occurred in peacetime under a stable monarchy.

A nearly identical experiment was conducted by a republican form of government in the setting of a revolution only eight decades later. The elapsed time was just sufficiently long that the earlier experience had largely faded from national memory. Those who were familiar with the history of the earlier experience were not able to overcome the argument that the government, the times, and the setting had changed. Early success of the venture tended to further weaken the opposition so that the issue of increasing quantities of paper money met with progressively less resistance. Ultimately the second experiment ended, in the same way as the first, with a hyperinflation and total collapse of the monetary system. In both cases precious metal coins were recognized as the official money following the demise of the

paper currency.

The French misfortunes in monetary affairs were far from unique. As the chapter which follows will show, the American colonies as well as the new American central government were concurrently conducting their own experiments with paper money.

III. The Early American Monetary System

During the seventeenth century, economic development in the American colonies was sufficiently primitive that colonies relied on the most widely produced, and hence most marketable, commodities to serve as money. Although the English government forbade the establishment of a mint and the import of coin from England, foreign coins were available in urban centers and for foreign trade. The colonies used the English pound sterling (4.44 Spanish dollars in weight ratio of silver) as a basis for accounting so that it was necessary to employ conversion factors when other foreign coins were exchanged.

The mercantilist philosophy of encouraging exports was widely held in the colonies and the first debasement for this purpose occurred in 1642 when Massachusetts arbitrarily devalued the pound in terms of the Spanish dollar. Devaluation caused Massachusetts goods to be less expensive for foreign dollar holders and thus amounted to an export subsidy. Of course, the price of imports increased concomitantly at the expense of colony consumers. The practice spread until devaluations between the colonies became quite competitive--much to the consternation of British creditors, whose debts were denominated in devalued English money (68:127).

With an early start in the manipulation of money standards and wide prevalence of the mercantilist view that more money is tantamount to more wealth, it is not surprising that the introduction of paper money in Europe attracted

favorable attention in the colonies. As early as 1682, the influential Reverend John Woodbridge of Massachusetts wrote that increased money, "multiplies trading; increaseth manufacture and provisions for domestic use and foreign return; abateth interest (68:129).

Shortly thereafter, the Massachusetts colony produced the first government-issued paper money in the western world. In 1690, Massachusetts issued seven-thousand pounds (sterling) in paper notes to pay for an unsuccessful military expedition against Quebec. As an inducement for public acceptance of the notes, the colony pledged to limit their issue and to redeem in specie from future revenues.

These notes began to depreciate in terms of specie almost immediately. Depreciation accelerated when, only a year later, forty thousand additional pounds were placed in circulation to pay colony debts. Pamphlets were issued blaming depreciation on the colonists for being; "so sottish as to deny credit to the government, when tis of their own choosing" (68:131). In 1692, the colony government made the notes compulsory legal tender for all debts and then began to expand the quantity rapidly.

The attempt to force notes to maintain a face value equivalent with specie caused the phenomenon known as Gresham's law to occur. This "law," attributed to Sir Thomas Gresham of sixteenth century England, but apparently first formulated by Copernicus, holds that bad money tends to drive good money from circulation (2:66). It is based on

the observation that when currencies having different metallic values but identical face values are placed in simultaneous circulation, there is a tendency for the more valuable currency to disappear into hoards or exports leaving the less valuable to circulate.

Thus in 1690, before the issue of paper money began, it is estimated that two-hundred thousand pounds in silver money were available in New England. By 1714, two-hundred and fifty-thousand pounds in paper money had been issued in New England, but the circulation of silver had ceased (68:131-32). The other American colonies rapidly proceeded along the monetary course charted by Massachusetts and all colonial paper money was eventually made legal tender. The legal tender was issued at face value in specie, but coercion in the form of fines, imprisonment and confiscation proved inadequate to prevent a severe depreciation in purchasing power.

Yet, despite the fact that monetary circulation had risen continuously, complaints of a scarcity of money persisted throughout the colonies during the period from 1695 to 1774 (68:133). These complaints have mis-led some economic historians into concluding that in fact there was a shortage of coins in the colonies which made the issue of paper money beneficial, if not completely necessary. (For example see 81:62.)

By 1775, America was a fairly wealthy land, producing approximately fifteen per cent of annual world output of

iron and possessing ample supplies of food and textiles (13:135). The Continental Congress did not, however, have adequate taxing authority to conduct a major war effort. Therefore, the Congress and the states elected to finance the war primarily by the issuance of a paper currency which came to be known as the "Continental."

The first issue of Continentals occurred in 1775, was limited to the sum of three million dollars, and was to be redeemed in Spanish silver dollars or an equivalent value in gold or silver upon presentation by the bearer. The date of precious metal delivery was unspecified, but was supposedly to follow shortly after successful conclusion of the war. Another three million dollars was issued by the end of the year and ever larger sums followed annually thereafter.

By the end of 1779, approximately 200 million dollars of Continentals and an equivalent sum in state notes had been issued. A qualitative answer to the question of price performance was provided by George Washington, who wrote in 1779: "A wagon load of money will scarcely purchase a wagon load of provisions" (13:138-42).

In contrast with Washington's experience the British, purchasing exclusively with specie, were well fed, housed, and supplied throughout the war. Many were living graciously in Philadelphia at the very time Washington's troops were shivering in Valley Forge.

In the case of the Continental, as with earlier paper money experiences that have been described, the following

results ensued (13:138-45):

1. A limited issue of paper became practically unlimited.
2. Prices rose slowly at first, then at an increasing rate.
3. Specie disappeared (Gresham's law).
4. Speculative activities increased substantially.
5. Price controls were established (1777).
6. Penalties were imposed for discounting paper in terms of specie.
7. Purchasing power of the currency became almost nil.
8. The currency ceased to circulate and was replaced by specie.

The principle victims of the inflation were those who accepted the Continentals in good faith and held them during the war, or who were restricted to dealing in Continentals by occupation or personal circumstance. Josiah Quincy, a Boston lawyer, voiced his disapproval in a personal letter to General Washington (13:143):

I am firmly of the opinion, and think it entirely defensible, that there never was a paper pound, a paper dollar, or a paper promise of any kind, that ever yet obtained a general currency, but by force or fraud, generally by both. That the army has been grossly cheated; that creditors have been infamously defrauded...in consequence of our disgraceful depreciated paper currency....

There was one highly salutary consequence of the Continental experience: most people had seen enough of unrestricted paper money. Consequently, in drawing up the new Federal Constitution in 1787, a conscious effort was made to insure that such monetary policies would not be repeated.

According to Article I, section 10 of the Constitution, the states were denied the authority to "coin money, emit bills of credit; make anything but gold and silver coin a tender in payment of debts." The Constitution reserved the coining of money exclusively to the Congress and conspicuously omitted any mention of paper money.

On August 15, 1787, the Constitutional Convention debated the subject of authorizing the new government to issue paper money. James Madison's convention notes represent the views of members Elsworth of Connecticut, Wilson of Pennsylvania, and Butler of South Carolina as follows (79:557):

Mr. Elsworth thought this a favorable moment to shut and bar the door against paper money. The mischiefs of the various experiments which had been made, were now fresh in the public mind and had excited the disgust of all the respectable part of America. By withholding the power from the new Government, more friends of influence would be gained to it than by almost any thing else. Paper money can in no case be necessary. Give the Government credit, and other resources will offer. The power may do harm, never good.

Mr. Wilson. It will have a most salutary influence on the credit of the United States to remove the possibility of paper money. This expedient can never succeed whilst its mischiefs are remembered, and as long as it can be resorted to, it will be a bar to other resources.

Mr. Butler remarked that paper was a legal tender in no Country in Europe. He was urgent for disarming the Government of such a power.

When the final resolution on this question of authority was voted, only New Jersey and Maryland were recorded in favor. This meant, so the framers of the Constitution thought, that the United States could never emit a paper money not redeemable in gold or silver coin without passage of an authorizing amendment.

The Constitutional intent was later implemented in the Coin Act of 1792, establishing an equivalent to the Spanish silver dollar as the standard unit. All silver, gold and copper coin to be issued were specified as to face value, weight and purity, and a policy of free coinage (page 21) was established (63:19). It thus appeared that America had established a monetary policy in the Byzantine rather than the Roman tradition.

The Greenback

In December of 1861, eight months after the outbreak of the Civil War, the Government along with principal banking institutions suspended payment in specie. Banks had become overinvested in Government bonds and could not find buyers when it became apparent that the war would be expensive and the Government, perhaps, unable to repay its war debts. Unwilling or unable to increase taxes and pay exorbitant interest rates on bonded debt, the Government resorted to the issue of so-called "greenbacks." These were simply non-interest bearing, non-redeemable, Government notes printed with green ink and endowed with legal tender status.

In prior years, repeated attempts to establish a government fiat money had either failed to pass Congress or had been defeated in court. But in 1862, under appeal to the exigencies of war, the act of Congress which created greenbacks was passed hastily and practically unopposed. Promises came from the House, the Senate, and the President that the first issue would be the last, but within six months a second

issue was called for. By the end of the war, 431 million dollars in greenbacks were in circulation along with 236 million in interest bearing legal tender notes; these were pledged against an estimated 28.3 million dollars in specie (3 :132).

This was not really a large expansion of the money supply in terms of typical fiat money inflations. But the greenback inflation is one of the first for which substantial statistical data has been recorded and therefore affords an opportunity for additional insights.

The rapid depreciation of greenbacks appears in Table II as a rise in the relative price level of commodities and gold. Although much of the interest on Government debt was paid in gold, that metal nearly disappeared from circulation for eighteen years (3 :73). Table II also reveals the rush into gold which occurred in 1863 when it became apparent that the war would not end quickly and that additional issues of greenbacks would be forthcoming. When Lee surrendered in 1865, the gold price quickly fell to the level of other commodities. During the period from 1865 and 1869, a substantial speculation in commodities developed and doubts persisted that payment in specie would be resumed. After 1875, when the Resumption Act was passed, preparation for resumption of specie payment began in earnest as reflected in the decreasing gold premium. In December of 1878 greenbacks touched par with gold for the first time since their issue in 1862 (3 :227).

Table II

Relative First Quarter Prices of Gold and
Wholesale Commodities for Selected Years (1861-1880)

<u>Year</u>	<u>Gold</u>	<u>Commodities</u>	<u>Year</u>	<u>Gold</u>	<u>Commodities</u>
1861	100.0	100	1868	138.5	158
1862	102.5	100	1870	121.3	147
1863	145.1	125	1872	109.1	133
1864	155.5	156	1874	111.4	130
1865	216.2	216	1876	112.8	117
1866	140.1	182	1878	102.1	99
1867	134.6	169	1880	100.0	108

(1860 price in greenbacks = 100) (Data Source: 3 :Table B)

Professor Irving Fisher, in his classic, The Purchasing Power of Money (pages 259-62), used Civil War price and money supply data to support the quantity theory of money. According to this theory, changes in the purchasing power of greenbacks were caused by changes in the quantity in circulation or anticipations of such changes. On this hypothesis, the sharp break in prices in 1865 could be accounted for by the expectation that no further greenbacks would be issued.

While one might expect such a sharp drop in prices to cause many business failures to occur, this was not the case. An explanation is suggested in an article written by a prominent businessman of the time (3 :117):

When the war ended, we all knew we should have a panic. Some of us, like Mr. Hoar, expected that greenbacks and volunteers would be disbanded together. Others expected gold to fall to 101 or 102 in a few days. Others saw a collapse of

manufacturing industries, owing to a cessation of government purchases. But we all knew a crisis was coming, and having set our houses in order accordingly, the 'crisis' of course never came.

Most wage-earners did not fare well during the inflation. As the paper standard depreciated, prices rose rapidly, while wages lagged behind. Table III reveals this effect on relative real wage rates for employees of eastern manufacturing companies. With the rapid fall in prices that occurred after 1865, however, real wage rates shortly returned to pre-war levels.

Table III
Relative Real Wages (1860 = 100)

<u>Year</u>	<u>Real Wage</u>	<u>Year</u>	<u>Real Wage</u>
1860	100	1864	80
1861	90	1865	85
1862	82	1866	93
1863	81	1867	102

(Data Source: 3 :124)

Lenders who made loans early in the war and were repaid later in greenbacks, suffered a substantial loss in purchasing power on the principal. But lenders of 1864 gained as much as 40% in purchasing power when prices fell in 1865. Only a slight increase in interest rates occurred during the war, so anyone dependent upon interest income suffered a substantial decline in real income (3 :122).

After the Resumption Act the fiat money system was

returned to a metallic currency basis under President Hayes and a strong upward movement in business activity began. The Hayes administration was given credit for returning the country to a sound currency basis and easily won re-election (1880) (3:246).

The importance of the greenbacks episode goes beyond the relatively small inflation and economic dislocations which occurred. The greenbacks represented a departure from the monetary provisions of the Constitution that had not previously been tolerated. The public became accustomed to thinking of money as certificates of debt and that way of thinking became the dominant view in the course of events to come.

The Gold Standard

Although gold coins date back to ancient Greece, the gold standard is of comparatively recent origin. In 1816 all English money, including paper notes and silver coins, was made convertible into gold coin and the pound sterling was redefined as a fixed amount of gold. Nearly all of Europe had adopted the "new gold standard" by 1875 but the United States, while on a de facto gold standard, continued to experiment with bimetallism until the Gold Standard Act was passed in 1900 (81:348).

Major national currency units were defined in terms of a specific weight of gold and were convertible into that amount of gold on demand. By calculating the weight ratios of gold in the standard units of different nations, one

arrived at the exchange ratios of their currencies.

Dr. Melchior Palyi, chief economist in 1928 for the largest European financial institution, the Deutsche Bank, has written concerning the establishment of an international gold standard as follows (59:8-9):

By 1914, few people questioned that the gold standard, as they knew it was here to stay; it was the epitome of monetary wisdom. It had been accepted wherever financial order had been established...The role of the gold standard in unifying the economy of the civilized world can scarcely be overestimated.

In other words, the establishment of gold as an international money tended to unite the different national markets into a single world market. Domestic money supplies became dependent upon gold movements since any imbalance of exports and imports was compensated for by a net gain or loss of gold. If imports exceeded exports for any length of time, a loss of gold resulted. This loss was experienced as a reduction in the money supply and, other factors constant, caused a fall in domestic prices. The fall in domestic prices attracted foreign buying resulting, in turn, in a net inflow of gold. The balancing feature of this system in Palyi's words: "brought about a relative uniformity, coordination, and integration of respective national price level trends, sustaining a degree of world-wide stability that was unparalleled before or since" (59:10).

It should be noted, at this point, that the widely accepted practice of keeping only a small percentage of deposits on hand (fractional reserve banking) resulted in the

existence of a supply of circulating media generally far in excess of the stock of gold. Within a given country, currency held by the public together with bank deposits might amount to several times the gold stock. If a war or crisis occurred with an ensuing run on commercial or central banks, it was often discovered that the gold was not really there. This practice of issuing money substitutes in excess of gold was instrumental in the destruction of the gold standard during World War I.

At the outbreak of World War I, there existed a widespread conviction that the war would be brief due to the tremendous financial requirements. It was believed that the belligerent governments would soon cease to be credit-worthy, and threatened with bankruptcy, would seek a negotiated rather than a battlefield resolution of the conflict (59:2).

In reality every country involved in the war suspended gold convertibility of domestic currency. By so doing governments were able to finance the war, in the tradition of United States greenbacks, by issuing vast amounts of money substitutes. Not only was the war probably lengthened by this means, but the increase in money supply was accompanied by increased prices.

Table IV displays the percentage change in prices and narrowly defined money supply (currency in circulation plus demand deposits) that occurred in five major countries over the war years.

Table IV

Changes in Money Supply and Prices 1913-1919

Country	Money Supply % Increase	Wholesale Prices % Increase
United States	73	106
Japan	123	115
Great Britain	144	157
France	265	230
Germany	726	703

(Data Source: 59 : 33)

The victorious and neutral nations made preparations to return to the gold standard at the end of the war. Germany, however, launched upon a paper money hyperinflation that by 1923 reduced the mark to one-trillionth of its pre-war purchasing power (7 : 39).

Developments Following World War I. The United States had acquired substantial amounts of European gold during the war, but delayed resuming convertibility for almost a year after the war's end. Britain was not ready to return to gold until the end of 1925 and France delayed until 1928. Both financial and political factors were responsible for the slow return to gold in most countries and some, primarily through resort to additional expansion of currency and credit, were never able to reestablish convertibility.

In resuming convertibility the United States actually returned to a full gold coin standard as specified in the Gold Standard Act of 1900. This meant that gold coins were the standard money and United States notes, called "goldbacks,"

accordingly bore such legends as:

THIS CERTIFIES THAT THERE HAVE BEEN
DEPOSITED IN THE TREASURY OF THE UNITED
STATES OF AMERICA TEN DOLLARS IN GOLD COIN
PAYABLE TO THE BEARER ON DEMAND

In effect, the note was a warehouse receipt for a citizen's money, deposited at the United States Treasury for the sake of convenience and safety. The dollar at that time was one twentieth of a troy ounce of gold. The price of gold was not twenty dollars per ounce; twenty dollars was one ounce of gold and this remained true until 1933.

England, on the other hand, did not return to a gold coin standard but to a bullion standard. English citizens could claim their gold but only in the form of heavy bars. Since a person of average means could hardly afford one bar--and having acquired one would find it difficult to store, transport, protect, or exchange--such a standard tended to discourage both circulation of the monetary metal and bank runs.

The bullion standard was not an incidental choice on the part of England but was born in the attempt to establish parity of the pound with gold at prewar levels, or in terms of the dollar, at \$4.86. This implied a reduction in the supply of money substitutes and in prices, which was very difficult to achieve. In fact England was not able to maintain the former parity beyond 1931 at which time convertibility was again suspended.

Most countries able to return to gold after World War I adopted the gold exchange standard. Under such an arrangement

the currency of one country is convertible into drafts payable in the currency of another country that is on a gold bullion or coin standard. The international monetary standard, after the Genoa Conference of 1922 was, in fact, a gold exchange standard with the dollar and later the pound serving as the basic convertible currencies. A standard of this sort permits in effect "double counting" of gold, as foreign currency is issued on the basis of the convertible currency which, if kept at par in the domestic market, represents a claim on total domestic gold stock. Thus two claims to the same quantity of gold can exist and the international supply of currency can be effectively doubled (71:26).

In 1931, following the collapse of several prominent European banks, England went off the gold standard just two days after the Governor of the Bank of England gave assurance the standard would be maintained. American banks suffered losses from the European failures and these losses together with the suddenness with which England abandoned gold, created doubt about America's ability to maintain a convertible dollar (67:228).

Concern about the Government's ability to redeem currency apparently became widespread among Americans shortly after the stock market collapse in 1929, for gold coins began noticeably to disappear at about that time. In 1932, millions of ten and twenty dollar gold coins were minted but quickly vanished while the public clamored for more. The Treasury finally abandoned attempts to meet the demand and ceased

minting gold coins in 1933 (9 :109-111). Gresham's Law (page 47) was apparently still operative.

The Gold Reserve Act of 1934. In January of 1933 foreigners withdrew a large amount of gold from the United States and many Americans began withdrawing their money from banks to be stored at home or in safety deposit vaults. By mid-February, one state after another declared a "bank holiday:" banks were closing everywhere. On March 6, President Roosevelt, citing as authority an act which had been passed during World War I, declared a state of emergency and ordered the closing of all banks.

President Roosevelt's emergency proclamation described the existing problems as follows:

WHEREAS There have been heavy and unwarranted withdrawals of gold and currency from our banking institutions for the purpose of hoarding; and

WHEREAS continuous and increasingly extensive speculative activity abroad in foreign exchange has resulted in severe drains on the Nation's stocks of gold; and

WHEREAS it is in the best interests of all bank depositors that a period of respite be provided....

The text of the Presidential Proclamation clearly implied that the United States of America, the world's economic giant, had been brought to grief by a group of hoarders and speculators.

Only one month after the above proclamation an Executive Order was issued demanding the surrender of gold coin, goldbacks, and bullion to the Federal Reserve System. Failure to comply with the order was punishable by a ten-thousand

dollar fine or ten years in prison, or both. A subsequent Executive Order banned all exports of gold, making it clear that the United States did not envision an early return to convertibility.

Within three months of the embargo on gold exports, the gold exchange value of the dollar had decreased by fifty per cent and subsequently underwent large fluctuations as international currency traders attempted to guess United States Government intentions. When the period of variation was ended by passage of the Gold Reserve Act of 1934, the President specified an exchange rate of thirty-five dollars per ounce of gold. The dollar had been debased to fifty nine per cent of original weight and the Government had gained three billion dollars of paper money that could be issued on the basis of existing gold stock (29:465-70).

The Gold Reserve Act placed the United States on a gold bullion standard internationally. Domestically, United States citizens were forbidden possession of gold other than in minor amounts as in jewelry or rare coins.

The Bretton Woods Conference. In 1944, just prior to the end of World War II, more than forty nations sent representatives to a conference held in Bretton Woods, New Hampshire. The purpose of the meeting was to dismantle some of the wartime trade barriers and to establish generally stable currency exchange rates without reducing the large quantity of money substitutes generated by war financing. Assistant Treasury Secretary, Harry Dexter White, represented

the United States, while the dominant figure at the meeting was John Maynard Keynes representing Great Britain. Two significant results emerged from this meeting: creation of the International Monetary Fund (IMF) and establishment of a new gold exchange standard (36:529-31).

Under the Bretton Woods agreements, each IMF member country would pay an initial quota into the Fund consisting of 25 per cent in gold and 75 per cent domestic currency. Thereafter a country would maintain an official par value for its currency expressed in terms of the American dollar. If domestic currency subsequently fell more than one per cent below par, the country was obligated to buy dollars or, after consultation with the Fund, to devalue its currency if "fundamental disequilibrium" existed. For the purpose of maintaining par value, a member country was permitted to call upon a line of credit in other currencies with which to temporarily support its own (36:529-31).

Thus the currencies of each of the one hundred countries that ultimately became members of the IMF were tied at a fixed rate to the dollar. The dollar was to serve as the sole link with gold, convertible on demand into gold at the rate of \$35 per ounce. Even this semblance of the gold standard was strictly limited, for the United States was required to pay gold only to national central banks or other official institutions.

There was some disagreement among Bretton Woods conferees as to exactly what sort of system had been established. Upon

his return from Bretton Woods, White explained to the United States Congress that the new arrangements would work very much like the gold standard with its historic contributions to stability and discipline. Keynes, on the other hand, reported to the British Parliament that the arrangements would have no similarity to the gold standard and would not impose on the member countries the intolerable restraints inherent in the gold standard (36:531). Subsequent developments showed that Keynes was essentially correct.

The Bretton Woods Aftermath. Apparently the Bretton Woods agreement was hardly more than a formalized and slightly modified version of the gold exchange standard which came into existence after World War I. Little incentive existed for any member of the IMF to hold gold. Since dollars were equivalent to gold for reserve purposes, each country would logically prefer to hold dollars in the form of interest paying, dollar denominated, United States Treasury notes or bonds rather than to exchange them for gold.

To envision the system in terms of a simple model, one need only look upon the United States as the world's bank in which was secured a portion of world gold. Each dollar issued by that bank represented a "claim" on 1/35 of an ounce of the nearly 575 million ounces on deposit in 1945. Upon acquiring one of these claims, a country effectively became a bank depositor and might issue a fixed number of domestic claims called pounds, francs, or pesos for example. Should the need have arisen, the country could theoretically

have exchanged all accumulated dollar claims for gold and with that amount plus any gold already on hand, redeemed domestic claims.

Thus the link of the dollar to gold served as a theoretical constraint upon growth of the world's supply of currencies. Whether this link would be preserved depended in large part upon an institution to be considered in the section which follows: the American banking system.

IV. Early American Banking

In reviewing the background material relevant to inflation, one needs to consider the conditions and purposes which led to establishment of a very important institution, the United States Federal Reserve System. Professor Paul Samuelson provides a concise statement of typical contemporary views in his widely used undergraduate economics text (73:276):

In 1913, the Federal Reserve Act was passed by Congress and signed by President Wilson. It sprang from the panic of 1907, with its alarming epidemic of bank failures: the country was fed up once and for all with the anarchy of unstable private banking. After half a dozen years' agitation and discussion by both parties, the Federal Reserve System was formed--in face of strong banker opposition.

Samuelson's statement suggests the following questions:

1. What conditions would lead to an "epidemic of bank failures?"
2. How did such conditions come to exist?
3. Why was private banking "unstable?"
4. Why was the country not "fed up" with the "anarchy" of other industries such as automobile manufacturing?
5. Why would establishment of the System face "strong banker opposition?"
6. In a country so innovative in most respects, why was a well established institution like central banking so delayed in acceptance as the obvious solution to a widely discussed and recognized problem?

Perhaps questions five and six above answer each other; delayed establishment of central banking may have been due to persistent opposition by bankers. But to determine whether

this was the case and to answer the remaining questions, one must review banking as it evolved in the United States. As a reference point, it is helpful to consider a bank in the original form of a market-established money warehouse in the British goldsmith tradition.

Free Banking

As discussed in Chapter II, banks originally served as repositories for coined money known as specie. The receipt for this money was a storage certificate. It no more represented a transfer of ownership to the bank than a receipt for soiled clothing signifies that a laundry has become the new owner. The owner retained title and expected to receive or effect a transfer of his money whenever he desired. In exchange for storage and transfer service, as with any other market-provided service, the owner paid a fee.

A client of one bank could conveniently transfer money to the client of another bank by simply writing an order in the recipient's name and leaving the two banks to effect the physical transfer. If one client wrote a transfer order naming another client of the same bank, then only transfer entries were made in the bank's own accounts.

The receipts issued by such banks were known as bank notes and often changed hands as money substitutes many times before returning to the bank to be exchanged for money. The transfer orders were checks, differing from notes only by the more specific nature of the transfer process. Clearly, both notes and checks were substitutes for specie.

There are three limiting market factors on the usage of such money substitutes:

1. The extent to which people use banks rather than specie.
2. The number of bank customers who do not use the same bank.
3. Confidence among customers in the integrity of their bankers.

If people insist upon using specie in transactions, the quantity of substitutes will shrink to zero. If each bank has only a few customers, more physical transportation of specie will necessarily occur. Should customers completely lose confidence in their banks, all specie would be demanded in exchange for outstanding notes and checks, and again, the quantity of money substitutes would shrink to zero (69:867-70). These three market factors tend to raise the quality of services in a way similar to any other competitive enterprise.

In a "free banking system," any bank which spends money belonging to clients would be guilty of misappropriation in a way analagous to the laundry, which sells clothing left for cleaning or a household goods warehouse, which auctions a client's furniture. Such misappropriations are treated as breaches of trust in most nations and would ordinarily provoke legal action against the perpetrator. But this is only, ex post facto, a check upon the issuance of money substitutes. Since money is homogeneous, misappropriation of minor amounts would not be detected unless one of two things happened: either most of the bank's clients presented

a majority of the outstanding substitutes for redemption simultaneously, or the substitutes were paid to customers of other banks which subsequently called upon the issuing bank to redeem.

The former event is the most effective market power in the hands of consumers: a concerted consumer action known as the "bank run." The bank run stands as a constant threat to dishonest bankers and encourages individual banks to develop and maintain a reputation for safeguarding clients' money.

The second most effective market deterrent to misappropriation by bankers is the existence of competition. When a large number of independent banks exist, they must compete not only in terms of reputation and service, but each must stand ready to meet large demands for money transfers from non-client banks. In other words, the more banks that exist having different sets of clients, the more money will be transferred, for banks cannot expect to meet the demands of their own depositors for specie with notes issued by another bank.

The reader should be cautioned at this point that what has been described is a simplified conceptual model which has been termed free banking. It is a private banking system entirely free from intervention by the state other than in cases where fraud has been discovered following a bank run or inability of a bank to meet competitor's demands for payment. Such a system may also be characterized as

operating on a "100 per cent reserve" basis since any issue of money substitutes exceeding specie holdings (reserves) would be viewed as fraudulent, and hence, proscribed. The purpose of presenting this model is to provide a referent for analyzing American banking as actually practiced.

The First Bank of the United States

The First Bank of the United States was established by act of Congress in 1791, largely as a result of the efforts of Alexander Hamilton. Hamilton, an advocate of strong central government, was opposed by Thomas Jefferson and his supporters who argued that a central bank was unconstitutional and, as a monopoly establishment, would discourage development of a sound private banking system. Opposition to the First Bank remained strong and thwarted renewal of the Bank's charter in 1811.

Since the capital stock of the First Bank was owned in part by Americans and foreigners as well as the Government, the Bank was nominally a publicly owned institution, rather than a simple extension of government. It functioned as a central bank, however, attempting to regulate the issue of bank notes by state chartered banks, holding federal funds and acting as fiscal agent for the Treasury (42:127-29). Thus the First Bank, in performing these functions, was actually the first central bank of the United States.

The Second United States Bank

Following closure of the First Bank in 1811, repeated

attempts were made to reestablish a central bank through new Congressional enactments. The provisions for establishment of such a bank were the subject of heated controversy in 1814 and authorizing legislation of that year was soundly defeated (46:14). Eventually, the drive for resumption of specie payments led to establishment of the Second Bank of the United States in 1816 (42:130).

One of the most influential and admired Congressmen of the times was the renowned lawyer and orator, Daniel Webster. Webster eloquently articulated the feelings of many who were concerned about the nature and purpose of a central bank of the sort envisioned in the legislation before Congress. These concerns are worthy of consideration in detail as the practice of central banking is a critical issue in the context of contemporary world-wide inflation.

The following are selected portions of Webster's "Speech Against the Second Bank" as recorded in the Congressional Record of January, 1815 (83:35-47):

What sort of an institution, Sir, is this? It looks less like a bank than a department of government. It will be properly the paper-money department. Its capital is government debts; the amount of its issues will depend on government necessities; government, in effect, absolves itself from its own debts to the bank, and, by way of compensation, absolves the bank from its own contracts with others. This is, indeed, a wonderful scheme of finance. The government is to grow rich, because it is to borrow without the obligation of repaying, and is to borrow of a bank which issues paper without liability to redeem it. If this bank, like other institutions which dull plodding common sense has erected, were to pay its debts, it must have some limits to its issues of paper, and therefore there would be a point beyond which it could not make loans to government.

This would fall short of the wishes of the contrivers of this system. They provide for an unlimited issue of paper in an entire exemption from payment. They found their bank, in the first place, on the discredit of government, and then hope to enrich government out of the insolvency of their bank. With them, poverty itself is the main source of supply, and bankruptcy a mine of inexhaustible treasure. They trust not in the ability of the bank, but in its beggary; not in gold and silver collected in its vaults, to pay its debts, and fulfil its promises, but in its locks and bars, provided by statute, to fasten its doors against the solicitations and clamors of importunate creditors...

...A wise and systematic economy, and a settled and substantial revenue, are the means to be relied on; not excessive issues of bank-notes, a forced circulation, and all the miserable contrivances to which political folly can resort, with the idle expectation of giving to mere paper the quality of money. These are all the inventions of a short-sighted policy, vexed and goaded by the necessities of the moment, and thinking less of a permanent remedy than of shifts and expedients to avoid the present distress. They have been a thousand times adopted, and a thousand times exploded as delusive and ruinous, as destructive of all solid revenue, and incompatible with the security of private property...

...Whenever bank-notes are not convertible into gold and silver at the will of the holder, they become of less value than gold and silver. All experiments on this subject have come to the same result. It is so clear, and has been so universally admitted, that it would be waste of time to dwell on it. The depreciation may not be sensibly perceived the first day, or the first week, it takes place. It will first be discerned in what is called the rise of specie; it will next be seen in the increased price of all commodities. The circulating medium of a commercial community must be that which is also the circulating medium of other commercial communities, or must be capable of being converted into that medium without loss. It must be able, not only to pass in payments and receipts among individuals of the same society and nation, but to adjust and discharge the balance of exchanges between different nations. It must be something which has a value abroad, as well as at home, and by which foreign as well as domestic debts can be satisfied. The precious metals alone answer these purposes. They alone, therefore, are money, and whatever else is to perform the offices of money must

be their representative, and capable of being turned into them at will. So long as bank paper retains this quality, it is a substitute for money; divested of this, nothing can give it that character. No solidity of funds, no sufficiency of assets, no confidence in the solvency of banking institutions, has ever enabled them to keep up their paper to the value of gold and silver any longer than they paid gold and silver for it, on demand....

...something must be discovered which has hitherto escaped the observation of mankind, before you can give to paper intended for circulation the value of a metallic currency, any longer than it represents that currency, and is convertible into it, at the will of the holder. The paper of this bank, if you make it, will be depreciated, for the same reason that the paper of other banks that have gone before it, and of those which now exist around us, has been depreciated, because it is not to pay specie for its notes. Other institutions, setting out perhaps on honest principles, have fallen into discredit, through mismanagement or misfortune. But this bank is to begin with insolvency....

...It will be altogether unpardonable in us, if, with this as well as all other experience before us, we continue to pursue a system which must inevitably lead us through depreciation of currency, paper-money, tender-laws, and all the contemptible and miserable contrivances of disordered finance and national insolvency, to complete and entire bankruptcy in the end. I hope the House will recommit the bill for amendment.

Although Webster's speech was much admired and the bank bill was subsequently amended in an attempt to eliminate the dangers of which he warned, the Second Bank was, in substance, very similar to the First. The Second Bank expanded the quantity of notes rapidly and the Bank's first president was shortly discovered to be speculating in Bank stock (42:130).

One of the primary reasons for establishing the Second Bank had been to accomplish resumption of payment in specie and end the inflation caused by excessive issue of state bank notes. That inflation was not ended, primarily

because the Secretary of the Treasury pressured the Bank into accepting notes of tottering state banks in order to avoid losses to the Treasury should these overextended banks have failed (42:130).

In 1818 the Bank finally reduced the rate of note issue and there ensued the depression of 1818-20. The Bank received most of the blame for this depression and attempts were made to repeal its charter. From 1820 to 1833, the bank was operated on a reasonably sound basis and through attempts to suppress the note issues of state banks succeeded to a large extent in restoring specie payments and ending inflation (42:130-31).

From 1833 to 1837 the quantity of notes was again inflated with an accompanying rapid rise in prices. Widespread speculative activity, particularly in real estate, reached a peak in 1836 and prompted President Jackson to issue a decree that all payments for public land were to be made in specie rather than notes (81:165).

During the 1830's the dominant political issue was banking. Access to bank credit meant the ability to command resources and demands for credit were widespread in the rapidly growing economy. But state banks, while increasing in number, were strictly limited to privileged groups by the requirement for a charter. Thus many entrepreneurs found that credit went to favored competitors who were clients of the Second Bank or state banks. This created hostility toward the monopoly banking system and

resulted in widespread demands for abolition of both the Second Bank and prejudicial regulations. Consequently, both political parties of the time attempted to pin the blame of "bank party" on each other (6:80-81).

Andrew Jackson, as a presidential candidate, had been particularly vociferous in the anti-bank campaign. Jackson claimed to represent the "true Jeffersonian principles of democracy against the corrupt money interests of the East" (15:110). When elected, therefore, he proceeded in earnest upon the task of dismantling the Second Bank and informed the Bank president, "I do not dislike your bank more than all banks, but ever since I read the history of the South Sea Bubble I have been afraid of banks" (15:114).

America's second experience with central banking thus ended with closure of the Second Bank in 1836. It should be noted that abolition of this Bank occurred under the leadership of a Democratic president widely regarded as a champion of the working man and small farmer in opposition to eastern banking interests.

During the period of termination of the Second Bank a rapid contraction in the supply of money substitutes took place in company with the depression of 1837-41. The void in issuance of substitutes created by the demise of the Second Bank would, however, shortly be eliminated by growth in the number of State Banks and bank note issues.

State Banking

In the period following closure of the First Bank, the

growth of state-chartered banks increased rapidly. between 1811 and 1816, the quantity of notes issued by these banks is estimated to have tripled. The increase was accompanied by inflation and wide-spread speculative activity. As a result of this excessive issue of notes, banks were unable to meet demands for specie and in 1814, note redemption was suspended (42:129). The expansion of notes was in large part due to Government needs in financing the War of 1812. Since the Government had no central bank to which to turn for financing following closure of the First Bank, state banks were encouraged to purchase Government securities. For this purpose, the banks issued and employed notes (81:115).

Many banks in New England were unsympathetic to America's entry into the war and consequently, the Government was forced to conduct most borrowing operations from state banks in other sections of the country. The note-printing banks were, therefore, soon called upon for redemption when these notes accumulated at banks in the Northeast where a major portion of war goods were purchased. The inability to redeem resulted in declaration of a nationwide two-year suspension of specie payment. This suspension encouraged the establishment of many new banks all anxious to issue paper notes without the need to redeem in gold or silver.

The suspension that occurred in 1814 set a precedent for what was to occur in subsequent crises. For example,

in 1819, 1837, and 1862 specie payments were officially suspended for extended periods. The natural result of this "approved" suspension of payment was the development of an understanding and tradition that extensive bank failures would not be permitted to occur. Bankers came to realize that so long as note issues were expanded at approximately the same rate by each bank, there was no great threat to solvency. If over-expansion occurred, an emergency (run) experienced by one bank was apt to spread to other banks and this would result in suspension of payment rather than declaration of bankruptcy. Unlike most other businesses unable to meet obligations, banks were privileged to conduct business in the customary manner despite the discovery of breach of contract. Moreover, since federal, state and municipal governments commonly relied upon state banks for the purchase of large quantities of government securities, precipitation of or participation in a bank run was often represented by both bankers and government officials as being irresponsible and unpatriotic. Some states went so far as to pass laws forbidding the instigation or encouragement of bank runs.

The sanction of default on note redemption amounted to an exact reversal of the role of government envisioned under the free banking model. Instead of protecting the consumer, the state and federal governments protected the bankers from consumers. With the probability of bank runs substantially reduced, the primary market check on the over-

issue and lending of bank notes was weakened. This weakening of a market constraint, corruption and favoritism in the issue of state charters, and limited competition, encouraged the growth of banks known as "wildcats,"--sometimes little more than an office equipped with a printing press. The variety of banknotes issued often ran into the thousands with different discounts on various note issues from the same and different banks (81:113; 42:132).

These discounts were experienced by bank customers as inflation. Concern about inflation was widespread during the rapid price rise that occurred from 1834 to 1837 and the cause was correctly identified in a popular saying of the time: "As the currency expands, the loaf contracts" (6:75-76). In a similar vein, an 1838 issue of the Weekly Ohio Statesman gave the following reply to the question of whether wages rose proportionately to prices (6:77):

They do not, and from the circumstances of the case, they can not. And the reason is obvious. The bankers who cause the expansion, and consequent depreciation of paper, (or increase of prices, just as you choose--the meaning is the same) are incorporated--connected--concentrated. They act simultaneously and immediately. But mechanics and laborers are simply individuals...pursuing different occupations, and frequently waging opposite pursuits.

Besides providing notes, safekeeping facilities and checking accounts, banks also granted credit. The practice of credit should not be confused with issuing spurious notes in the specie-based monetary system of nineteenth century America. In a credit transaction, money or other property owned by a lender is exchanged for a certificate of

indebtedness (IOU) which represents a future good. That future good is ordinarily a sum of money to be paid at some specified date (or in parts over a series of dates) of sufficient amount to induce the lender to part with the original sum. The rate at which the future amount is discounted over the specified time period so as to equal the present amount is the lender's rate of interest. During that period, the money is the property of the borrower per agreement.

A bank note, on the other hand is a receipt for money held in safekeeping and available to the owner, in theory, instantaneously. To lend money which one does not own by issuing a note or a checking account credit to a borrower is to "create" credit and the resultant general process is properly termed "credit expansion." While note expansion and credit expansion generally occur together or in tandem, either can occur without the other.

As seen, expansion of notes and credit was commonly practiced throughout the early banking history of the United States both during and following the periods of central bank existence. The unsatisfactory banking and currency situation precipitated a further attempt at improvement in the form of the National Banking Acts of 1863 and 1864.

The National Banking System

There is some implication in Samuelson's description of the American banking system (page 67), as it existed prior to 1913, that the system was one of unregulated private

enterprise; of anarchy in a system allowed to run amuck probably due to the existence of an underlying laissez-faire attitude toward government. As the reader has seen, this portrayal of early American banking is not accurate, however commonly accepted it may be. There is no question that the system was one of disorder, deceit and corruption, but not from any want of state and federal intervention. It cannot be concluded, however, that a free market system of banking would have performed in a superior manner or even as well as the extant system. All that can be said with conviction is that the free banking model was not closely approached in general practice.

Revision of the banking system could have proceeded in either of two directions in America of the mid-nineteenth century: toward non-intervention through abolition of the charter system and enforcement of market checks on excessive expansion; or toward increased intervention through enlargement and increased centralization of banking authority. The latter course was chosen.

The National Banking Acts of 1863 and 1864 were designed for the expressed goals of establishing a safe currency system and assisting the Treasury in financing the Civil War. The Acts provided for the establishment of national banks through issuance of charters obtainable from the Comptroller of the Currency in Washington, D.C. The overall system was to be one of state and nationally chartered banks with both permitted to issue notes on the basis of specie and

government securities holdings (42:134-35).

The period which followed the establishment of the National Banking System has already been described in a previous section entitled "The Greenback." It suffices to recall that the "safe currencies" underwent an immediate and substantial depreciation which persisted until shortly after the Resumption Act of 1875. The goal of financing the Civil War had been achieved, but the resultant currency was not of a character to inspire confidence. The War had been financed in part by direct taxation and in part by hidden taxation in the form of currency depreciation.

The capability for coordinated expansion of the supply of money substitutes was substantially improved. Increased expansion became possible because two market constraints on the issue of substitutes, the bank run and loss of depositor confidence, were further weakened. Also, the monetization of debt certificates (Treasury securities) against which Daniel Webster inveighed in 1815, was legitimized by permitting banks to treat these certificates as the equivalent of money in storage.

Despite the increased capability for substitute and credit expansion made possible by the Banking Acts as well as a substantial increase in checking account (demand) deposits which occurred following the War, the system has been criticized on the basis of an alleged "inelasticity in the supply of currency" (42:138). In other words, the market checks on note and credit expansion, though weakened, continued

to operate and caused contraction of the substitute supply to occur at some point following each expansion.

In July, 1893 there occurred a crisis: a run on banks resulted in suspension of currency payments (not bankruptcies) by 360 national and state banks (29:109f). The banking system had evolved beyond concerns with ability to redeem in specie. The problem had become one of maintaining sufficient amounts of paper notes on hand to master emergencies arising from the creation of accounting entries. The problem was the essence of complaints that the currency was not sufficiently elastic. It seems the mercantilistic complaint of a shortage of money is one of the few constants in human experience.

Intervention and the Panic of 1907

In the years between the crisis of 1893 and the panic of 1907 several relatively minor periods of bank difficulties were experienced. For example in 1899 a rapid decline occurred in the stock market and subsequently a number of banks and financial institutions failed (42:148). In that year an attempt was made by the United States Treasury to ameliorate the banks' liquidity problems and halt rapidly rising interest rates by furnishing additional currency to the banking system. This was accomplished by purchasing more than \$14 million in government securities in the securities market at a higher than market price. Again in 1902 when similar problems arose the treasury purchased nearly \$8 million in bonds, deposited \$5 million of Treasury

revenues in the national banks, and prepaid interest due on government bonds (42:149f).

The Treasury Secretary in 1902, Leslie Shaw, was an enthusiastic advocate of using Treasury powers to influence interest rates and the supply of currency. Under his guidance Treasury interventions increased, reaching a peak in 1906. Various devices, including those already mentioned, were employed in this intervention and facilitated expansion of the stock of money substitutes by 45 per cent in the years between 1902 and 1907 (42:149-53).

A statement by Secretary Shaw in his report to Congress at the end of 1906 indicates the degree of efficacy that he felt had been developed by the Treasury in the course of four years of experience in interventionism (42:149-50):

If the Secretary of the Treasury were given \$100,000,000 to be deposited with the banks or withdrawn as he might deem expedient, and if in addition he were clothed with authority over the reserves of the several banks, with power to contract the national-bank circulation at pleasure, in my judgement no panic...could threaten either the United States or Europe that he could not avert. No central or Government bank in the world can so readily influence financial conditions throughout the world as can the Secretary under the authority with which he is now clothed.

It is quite possible that Treasury actions did thwart a banking emergency in 1903. In any event, no substantial contraction in substitutes occurred and the index of whole-sale prices underwent no great decrease as was the case during previous more severe contractions. The period from 1903 to 1907 was one of sustained economic growth with the

nominal money stock increasing at an annual rate slightly in excess of 7 per cent and annual price increases of 2 per cent (42:152-53).

With such prosperity and an apparently abundant supply of money, it is not surprising that speculative activity in the stock market increased rapidly. Early in 1906 the Treasury acted to relieve a sudden escalation of interest rates that began primarily in the market for stock brokers' loans. Again in late 1906 the Treasury acted to relieve an apparent shortage of money among the New York Banks (42:155f). But despite Treasury efforts to maintain "easy money" conditions, a severe contraction began in 1907 in conjunction with (if not the result of) an external drain on gold reserves.

The contraction of 1907 began with a banking panic that culminated in widespread refusal of banks to convert deposits into paper currency or specie at the request of depositors. Concerted effort by the Treasury to halt the panic failed and the overall contraction was one of the most severe in American history, with prices and production falling while business failures increased sharply. Just one year later, however, banks were able to resume currency payments and a few months thereafter economic recovery began (42:157).

The noteworthy point for purposes of establishing banking background is this: one of the severest banking emergencies in United States history occurred following increased central banking authority and intervention in the

monetary system. This central authority was exercised by the Treasury through the National Banking System and had the effect of further weakening market constraints on note and credit expansion. As in previous significant expansions of money substitutes, including the assignats, continentals and greenbacks, Gresham's Law was observed to operate. A secular rise in prices occurred, and speculative activity increased.

Following the panic of 1907 the American banking system faced two basic possible alternative courses of action: a move toward the free banking model with maintenance of full market constraints on note and credit expansion, or a further centralization and strengthening of control over the banking system with near elimination of market constraints. Again, the centralization alternative was chosen with implementation in the form of the Federal Reserve Act of 1913.

In a quotation presented earlier in this chapter Professor Samuelson asserted that the Federal Reserve System was formed "in face of strong banker opposition." But if the history of nineteenth century American banking has been developed and presented accurately in this thesis, it hardly seems probable that bankers would object to further weakening of market constraints on note and credit expansion. If one occupies a firmly entrenched position in a profession to which access is limited by a licensing (state and national charter) system and increases one's profit in proportion to the number of loans one is able to make, then any system which

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A CRITICAL ANALYSIS AND COMPARISON OF SELECTED MODELS OF INFLAT--ETC(U)
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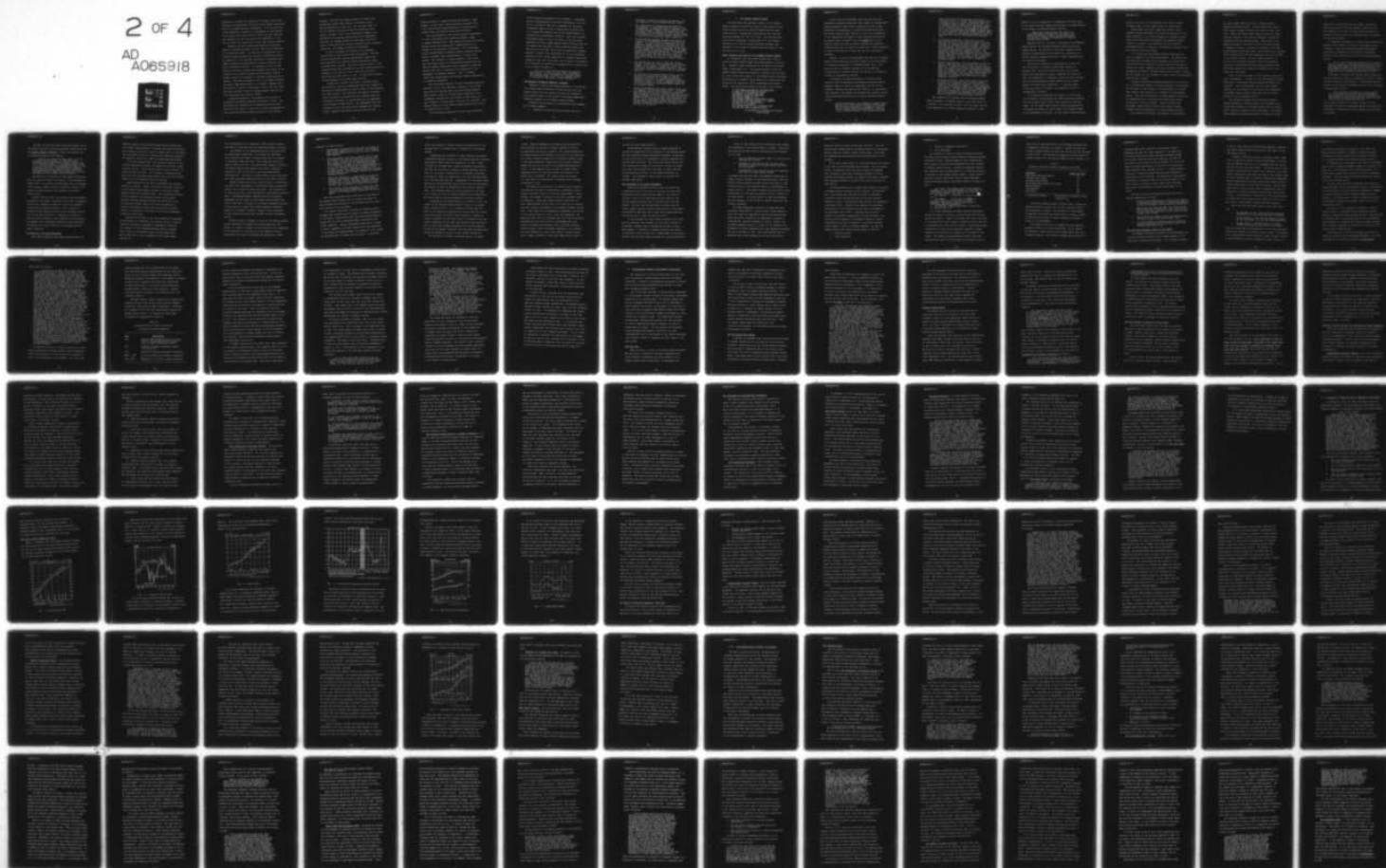
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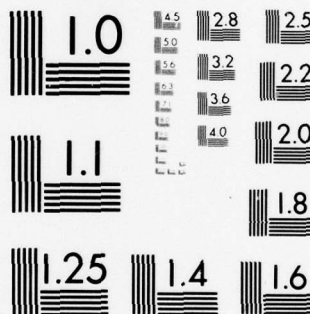
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MICROCOPY RESOLUTION TEST CHART
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promised to increase the capability to expand credit while reducing the probability of failure due to market constraints should not appear entirely undesirable. It would seem that either Samuelson's assertion is misleading or that bankers of the early 1900's were blind to their own best interests. This question can only be resolved by examination of the form in which such opposition, if any, was actually manifest.

Probably the first significant impetus for monetary reform, following the Panic of 1907, came from the National Civic Federation (NCF). The NCF was an organization dominated by large business and financial interests and stood in opposition to the National Association of Manufacturers (NAM), primarily an association of various merchants and small businessmen (84:3-6). In December of 1907 the NCF passed a resolution urging that Congress take action on the creation of an elastic currency and NCF members offered general support for measures to increase centralization of banking. The Board Chairman of one of the largest American railroads urged establishment of a central clearing house association to provide "intelligent control over the credit situation through a board of leading bankers under government supervision and control" (84:29).

Congress responded to the pressure for revision by appointing the National Monetary Commission of 1908. The Commission held hearings with representatives from many groups but was unable to arrive at concrete recommendations that satisfied different warring factions of the banking

industry. The New York bankers wished to achieve more centralized control while many of the smaller state banks preferred the status quo. The one goal common to all the banking factions was that of achieving a more elastic currency. Due to the internecine struggle, the problems of the banking community were not immediately resolved, but banking reform had been made a political issue by that group most vitally concerned with a favorable resolution, the bankers themselves (44:153-58).

In 1911 a proposal for revision of the banking system known as the Aldrich Plan was prepared. The Plan received significant banking and business support and was endorsed by the American Bankers Association (ABA). President Taft, however, objected to banker control of the proposed system and consequently the Plan, when presented to Congress in the form of a bill, received very little publicity and never came to a vote. At that point banking reform appeared to be a dead issue (44:189).

During 1912, however, the issue of banking reform was revived by the Pujo Subcommittee which was charged by the House of Representatives with the task of investigating the "Money Trust." The committee succeeded in arousing public concern by revealing that five banking firms had substantial influence on corporations with an aggregate capitalization of \$22 billion. The newspapers used this information in an anti-Wall Street campaign for banking reform, entirely overlooking the fact that the most

ardent advocates of banking reform were bankers. Many bankers, by this time, had become quite concerned about a real trend toward decentralization in finance and increased their own efforts toward reform (44:220).

With new momentum in the reform movement Congressmen, in close consultation with banking interests, began to prepare banking bills. When these bills were publicized, bankers would often issue public denunciations in an attempt to win favorable concessions. But in hearings before subcommittees on banking reform, prominent bankers agreed in general that centralization of control was needed. For instance, A. Barton Hepburn, a well known New York banker stated in subcommittee hearings that the American Bankers Association would cooperate on any good measure that led to elasticity and cooperation in the management of monetary reserves. And J.P. Morgan avowed that comprehensive and thorough banking legislation was needed (44:226-238).

When the Federal Reserve Act was ultimately passed in December of 1913, Paul Warburg, a partner in one of the major New York banking firms and later Federal Reserve Board member, wrote his friend Senator Glass that "the fundamental thoughts for the victory of which some of us have worked for so many years, have won out" (44:242). The Federal Reserve Act as finally passed differed little from the Aldrich Plan of 1911.

The authorizing legislation did not pass completely

uncriticized and unopposed in the Congress. A dissident group of Representatives noted the similarity of the Act to the old Aldrich Plan and a spokesman for the group, Congressman Eagle of Texas, alleged that the banks were "to be guaranteed against loss by the establishment of a paternalistic relationship" (44:234). When one considers Congressman Eagle's claim, the nature of the principal organizations which sought banking reform (NCF and ABA) and the remarks and testimony of many prominent bankers and financiers of the time, the picture of anarchistic bankers seeking to escape their responsibility to an increasingly disgusted public through opposition to remedial legislation emerges as less than convincing. The situation is probably more accurately reflected by a message which one banker sent to his senator (44:238-39):

It is not true that the bankers are opposing legislation. On the contrary, they, themselves, have brought about the demand for currency reform and there has been, and is now, a general apathy on the part of the public on this question.

Development of American Banking: A Summary

Bearing in mind the preceding discussion of the forces which shaped American banking through the time when the Federal Reserve Act was passed, one may posit answers to the questions posed in the context of Professor Samuelson's background remarks on the Federal Reserve System.

Restating those questions in declarative mode suggests the following summary:

1. Epidemics of bank failures resulted from the

operation of market (consumer) constraints upon the expansion of money substitutes and credit.

2. The conditions of overexpansion resulted from the practice of fractional reserve banking in an increasingly coordinated effort to maximize profit on credit grants. Greater intervention by the Government, the monetization of debt certificates and increased use of demand deposit banking created a secular trend toward ever larger expansions.
3. Private banking appeared unstable principally as a result of the phenomena noted in the above two answers. It should also be remembered that the state and federal governments intervened in the system by limiting entry, by excusing banks from market obligations, and by employment of the banks as instruments of monetary policy and as primary markets for government securities. Therefore, the descriptive term "private" should be used only with reservations and the term "free banking" definitely should be avoided in systemic descriptions.
4. The country was not "fed up" with the banking system. Most people were indifferent to proposed changes in the system. Primarily, change was called for by vested interests seeking to maintain privileged competitive positions and to increase profits.
5. In principle, the Federal Reserve System was not opposed but planned and welcomed by bankers. Naturally, conflicts of interest existed which required resolution, and some banking support was withheld in order to obtain concessions, particularly with regard to increased banker control of the proposed system.
6. America experimented twice with central banks prior to passage of the Federal Reserve Act. In neither case did the results prove generally beneficial. Many thoughtful nineteenth century Americans believed central banking to be not only unconstitutional but dangerous from both an economic and political viewpoint. These individuals were quite effective in preventing or abolishing central banking in America despite widespread acceptance of the practice in the rest of the world.

V. The Federal Reserve System

The structural and technical details of the Federal Reserve System are beyond the scope of this thesis but are easily pursued in any of numerous Federal Reserve Board publications or contemporary texts dealing with American money and banking (29, 36, 49, or 80). Policies and monetary control mechanisms, as provided for in the Federal Reserve Act of 1913 and evolved through the years, are important in the study of inflation and are treated in the sections which follow.

Early Operation and Policy of the Federal Reserve System

In compliance with the Federal Reserve Act, twelve district Federal Reserve Banks were established in 1914 and began operation under supervision of the Board of Governors (FRB) in Washington, D.C. The professed goals, which the Federal Reserve System was created to achieve, are inscribed on a wall within the entrance to the Federal Reserve Building. The wording is by Senator Carter Glass, who helped draft and introduced the legislation which established the Reserve System. The inscription format and content is as follows:

IN THE FEDERAL RESERVE ACT WE INSTITUTED
A GREAT AND VITAL BANKING SYSTEM
NOT MERELY TO CORRECT AND CURE
PERIODICAL FINANCIAL DEBAUCHES
NOT SIMPLY INDEED TO AID
THE BANKING COMMUNITY ALONE BUT TO GIVE
VISION AND SCOPE AND SECURITY TO COMMERCE
AND AMPLIFY THE OPPORTUNITIES
AS WELL AS TO INCREASE
THE CAPABILITIES OF OUR INDUSTRIAL LIFE
AT HOME AND AMONG FOREIGN NATIONS

AN ADVENTURE IN CONSTRUCTIVE FINANCE
CARTER GLASS

To this writer's knowledge, bank runs are the only "periodical financial debauches" that appear in United States banking history; unless Glass intended his words to mean periodical over-expansion of credit and money substitutes. The latter meaning seems unlikely in view of the background of the legislation and nature of the resultant institution. It appears that in Glass's view the primary goal of the Federal Reserve Act was to protect banking and commercial interests from the ill effects of bank runs. These interests at least would benefit if bank runs could in some way be deterred.

However, it must be acknowledged that authors of Federal Reserve Publications and economics texts do not often speak of "financial debauches" or "deterring bank runs." The latter action is commonly referred to as "correcting inelasticity of currency" (80:113 and 42:113) or averting a "crisis of liquidation" (40:207).

According to an FRB publication of 1939 the broad objective was "to maintain sound banking conditions and an adequate supply of credit at reasonable cost for use in commerce, industry and agriculture" (80:15). To accomplish this objective, the System was equipped with several institutional and regulatory devices as follows (49:23-49 and 80:47-52):

1. Discount Mechanism: All reserves of member banks are pooled at the district Federal Reserve Bank. Should a bank experience a shortage of reserve funds, reserves may be replenished by borrowing from the Federal Reserve. Non-member banks may

also invoke this privilege under conditions of financial stress. A "needy" bank may simply offer a commercial note or issue a promissory note to the Federal Reserve which, when discounted, yields an effective rate of interest on that note known as the "discount rate." By raising the discount rate, the FRB discourages borrowing by member banks. It is not intended that banks borrow reserve funds for the purpose of purchasing government securities yielding more than the FRB-established discount rate.

2. Open Market Operations: These were the most powerful tool for controlling the supply of money but were not widely used prior to 1922. Since the reserves of the System consist largely of government securities, the purchase of these securities from securities dealers or banks results in an increase in deposits in commercial banks. The banks then send the funds deposited to the district Reserve Bank and receive credit in their respective reserve accounts. On the basis of the added reserves, the banks can then further expand outstanding credit.
3. Reserve Requirements: This requirement limits the amount a bank may lend on the basis of its own reserves, or reserve credit at the district Reserve Bank. The size of the reserve requirement depends upon the classification of a bank under rules determined by the FRB or statute. When reserve requirements are increased, the capability for credit expansion is decreased and credit and the money supply may contract.
4. Selective Controls: These have varied from time to time but, in general, are limits on credit extension for specific purposes. Reserve authorities are instructed by statute to keep themselves informed as to whether "undue use is being made of bank credit" for speculation in securities real estate or commodities. In particular, the FRB may increase margin requirements on securities loans in order to curb stock market activity.

The foregoing list reveals that the Federal Reserve Board possesses a formidable array of tools with which to intervene in the American economy. But the reader may not fully appreciate the credit expansion potential in this

system; it is of a magnitude in comparison with which that of the former National Banking system pales to insignificance. In the words of an FRB publication (80:68):

Additional reserve funds that enable the individual bank to enlarge its own loans by an almost equal amount, enable the banking system as a whole to enlarge the aggregate of loans by several times as much.

Treasury debt is, in effect, "monetized" by the Federal Reserve System, by treating Treasury bonds and notes as system assets. The pooling of fractional reserves allows systemic multiplication of any addition to reserves by a factor typically ranging from five to eight, depending upon the reserve requirement.

The discount mechanism, listed above as a device of FRB intervention, provides an additional capacity to monetize debt; but in this case the debt is of private rather than governmental origin. Whatever the source of debt, the capability to transform a liability into an asset was ably characterized by Daniel Webster in his speech against the Second Bank (page 72): "...poverty itself is the main source of supply, and bankruptcy a mine of inexhaustable treasure."

By constantly increasing the supply of credit money in the system, the government can obtain goods and services from the private sector without the necessity of raising taxes. To the extent that interest rates are depressed by increasing the supply of credit money, the interest burden of the government is reduced. As the credit structure grows,

however, the cost of servicing debt must lead to either increased taxes or ever larger issues of credit money.

Having seen how credit, based upon credit, can be expanded through employment of the devices available to the Federal Reserve, it is next reasonable to consider to what extent the three market constraints upon expansion might continue to operate. One constraint was the number of independent banks in existence; the greater the number, the more effective this constraint.

It is clear that the Reserve System eliminated this check on expansion, at least domestically. The Reserve System effectively monopolized the issuance of currency and through inter-bank lending of "excess reserves" was able to insure that credit expansion was quite uniformly distributed throughout the System. Whether people used one bank, or many, did not matter, for the transfer of funds could be accomplished practically as needed.

Customer confidence (sometimes misplaced) in the integrity of individual bankers, a second constraint, was replaced by confidence in the ability of the government, as central bank operator and controller, to maintain a sound banking system. The bank customer felt in large measure relieved of the responsibility to scrutinize the record and current activities of the local banker. People believed that government experts would insure a high level of banker integrity and the maintenance of sound banking practices.

The remaining constraint, the extent to which people

use banks rather than hold coins or paper currency, remained relatively intact. Clients might still rush to their banks to demand currency and, prior to 1934, gold coins. While the System might supply currency in nearly unlimited amounts, time would be required to employ the appropriate Reserve System devices. Additionally, the demand for money in the form of gold coin could present a redemption problem. Therefore, according to the free-banking-market-constraint model, the potential for a banking crisis replete with runs and suspensions was still present in the banking system. The next logical question is: how well did the Reserve System fulfill the professed objectives of maintaining sound banking conditions and protecting banking and commercial interests from the ill effects of bank runs?

Prior to 1929 the answer to this question might have been, "adequately". By April of 1917 when America entered World War I, the Federal Reserve System had become fully operative. This was fortunate for the United States Treasury, as the burdens of war finance were substantial and Federal Reserve devices were employed for a major portion of this financing (85:8-9).

The process of partial war financing by Reserve System purchases of "Liberty Bonds" was accompanied by a 23 per cent increase in wholesale prices over the eight-month duration of America's war involvement. But government spending and debt monetization continued at a high

level for two years after the War ended. During the period from June of 1914 through May of 1920, one nominal measure of the stock of money and substitutes increased by 115 per cent while wholesale prices increased 147 per cent (29:206).

A fundamental difference of opinion arose between the Treasury and the FRB on the cause of the wartime price increases. Assistant Treasury Secretary Leffingwell, as financial spokesman for the Treasury, discounted quantity theory explanations with the following statement (85:21):

All of those people who believe in the quantity theory of money in its extreme form choose to call bank deposits money, but bank deposits are not money. Bank deposits cannot be paid out without money. Money which can be paid out over the counter cannot be gotten just by writing an entry into a book.

Leffingwell attributed the wartime price increase to "excess demand over supply of commodities" (85:20), resulting from government expenditures. He maintained that the supply of money simply accommodated itself to the increase in expenditures (85:20):

When an excess of demand over supply exists for a considerable period of time an increase in the quantity of money must follow as the effect of that excess unless the currency and credit structure breaks down and catastrophe results.

This statement leads one to wonder in what form the Government succeeded in expressing demand for goods since Leffingwell's explanation divorces demand from the means of purchase.

The FRB, on the other hand, resented Treasury use of the Reserve System to finance government expenditures and the Federal Reserve Bulletin of June, 1918 offered the following alternative view (85:22):

Creation of additional bank credit, for the purpose of buying bonds...by obtaining bank accommodations rather than by saving, results only in a technical increase of purchasing power, since it is not based upon a commensurate increase in the production of goods...The consequence of making such additions to bank credits is necessarily an increased tendency toward the bidding up of prices, and results in the menace called inflation.

The FRB view of inflation in 1918 agreed essentially with the classical model of inflation to be discussed in Chapter VIII. In essence the FRB argued that an increase in the means by which to effect purchases, without an increase in goods available for purchase, would cause higher prices.

Between 1919 and 1920, the discount rate was sharply increased to encourage a decrease in the rate of expansion. By mid-1920, expansion turned into one of the sharpest contractions in American history. Over a period of thirteen months ending in June of 1921, wholesale prices fell 56 per cent (29:231-2). Although an increase in bank failures occurred, no real banking crisis developed. It appeared that the Federal Reserve Act had eliminated the bank run as a major threat to the banking and financial community.

The Period of the Great Depression

Both early experience and theory indicate that the

Federal Reserve Act increased banking system capabilities for credit money expansion. Following the sharp contraction which ended in June 1921, came the "great boom" of the 1920's. This boom period served to indicate how large and sustained an expansion could occur under the Federal Reserve System.

From 1921 through 1929, the total gold reserves of the Treasury and Federal Reserve increased by 58 million ounces or \$1.16 billion. Total dollar claims on gold, however, increased by \$27.1 billion. The increase in Federal Reserve gold over the eight-year period was 15 per cent while dollar claims on gold increased 63 per cent (69:89).

Paper currency in circulation increased only slightly during this period. Almost the entire 63 per cent inflation of the nominal money supply occurred in the form of bank deposits and other monetary credit. The mechanism and cause of this expansion are beyond the scope of this paper. However, Professor Murray Rothbard has shown that it was in large part brought about by a de facto reduction in reserve requirements coupled with an increase in System reserves, principally in the form of bills and acceptances discounted (69:92-111).

Speculative activity in the stock market was encouraged by maintenance of relatively low interest rates on broker's loans and optimistic statements by government officials. For example, in 1927 Treasury Secretary Mellon observed that, "There is an abundant supply of easy money which should take care of any contingencies that might arise" (69:116-17).

As an additional aid to expansion, banks held more government debt in 1928 than they had during World War I (69:125).

One feature of the expansionary period following 1921 is particularly noteworthy: if one takes the Wholesale Price Index of the Bureau of Labor Statistics as a measure of inflation, there was none. This index was nearly the same in 1929 as in 1921. An even broader measure of prices, the Snyder Index of the General Price Level, showed an increase of only 13 per cent in the seven-year period following 1921. The level of stock prices on the other hand more than quadrupled during the boom of the 1920's (69:154).

Whether intentional or not, the policies of the FRB had resulted in the maintenance of relatively stable commodities prices over a period of nearly ten years. For advocates of a stable price level, this represented a praiseworthy achievement. John Maynard Keynes observed that the successful management of the dollar by the Federal Reserve Board from 1923 to 1928 was a "triumph" for currency management (69:156). If one holds to a theory that credit expansion generally leads to an increase in prices, clearly a major exception to such theory exists and must be dealt with by theoretical models.

Another issue to consider is how well the Federal Reserve System fulfilled its purpose of averting bank runs. The answer, of course, is almost too well known to bear repeating. It is sufficient to take note of a few statistics which characterize the period following the cessation of credit

expansion in 1928 (29:301):

1. Unemployment increased from less than 2 million in 1927 to more than 8 million in 1931. The unemployment figure remained at or above 8 million through 1940 (80:616).
2. Bank suspensions rose from a total of 500 in 1928 to 2,294 in 1931 and more than 4,000 in 1933 (80:593). Many of those who had placed blind trust in the banking system lost the accumulated savings of a lifetime. By March of 1933, the governors of all the states had declared "banking moratoriums" in order to prevent a complete collapse of the banking system. The state moratoriums were followed by the national "Bank Holiday" ordered by President Franklin Roosevelt.
3. Bank runs occurred on a large scale in three separately identifiable banking crises from 1930 through 1933. Public currency holdings increased by nearly 50 per cent and total deposits of commercial banks decreased by 40 per cent (29:302).
4. Total dollar income declined by 53 per cent over the four-year period beginning in 1929 and one measure of purchasing-power income fell by 36 per cent.

The above statistics imply that prior to World War II the Federal Reserve System did not achieve the goals of sound banking and avoidance of crisis which were the ostensible reasons for its creation.

The "great contraction" (29:299) as Professor Milton Friedman has characterized the period of credit liquidation in the 1930's, demonstrated that the United States Banking System had not fully eliminated market constraints upon credit expansion. Though independent banks were no longer a factor, apparently customers might still lose confidence in the System and demand payment in currency or coin, thereby revealing that the banks were insolvent. A concerted

effort was needed to further improve the elasticity of the currency and to increase public confidence in the banking system.

Increasing the confidence of bank clientele was easily accomplished through creation of the Federal Deposit Insurance Corporation (FDIC) under the Banking Act of 1933. Banks "insured" by the FDIC meet certain qualifying requirements and then are entitled to display an emblem assuring clients that, in the event of bank failure, the Federal Government will pay all claims of depositors up to some limiting amount, as of this writing, \$40,000. Assessments on individual banks based upon funds deposited provide income for the Corporation. The surplus on hand is designated as the Deposit Insurance Fund. The Insurance Fund has never amounted to more than one to three per cent of insured deposits but an additional \$3 billion may be borrowed temporarily from the Treasury.

According to the annual Report of the FDIC in 1971, the amount of the Insurance Fund was \$4.7 billion on a deposit total of \$393 billion. It is therefore obvious that the FDIC is not capable of dealing with serious bank runs unless some other source of funds is made available. Widely expressed confidence in the FDIC since its inception indicates public acceptance of the idea that whatever funds are necessary to deal with banking emergencies will be forthcoming. It must be concluded, therefore, that the FDIC has adequately served the purpose for which it was created (29:440-41).

The problem of currency elasticity was not so easily

solved. Large withdrawals of foreign gold and extensive gold hoarding by American citizens occurred in 1932-33 as previously discussed on page 61. The sudden manufacture of Federal Reserve and Treasury notes would not go unnoticed by a public already alarmed by the recurrent banking crises of the early depression stages and could provoke a massive demand for gold in the face of an already diminished gold stock. It was apparent that in order to resume credit expansion the tie to gold must either be severed or the dollar must be debased. The latter course was chosen, but only after the confiscation of domestic gold holdings as decreed in 1933.

Following the confiscation of domestic gold, American citizens who held gold in preference to government notes, became criminals--subject to fine and imprisonment. Nevertheless, the degree of success of the gold surrender order is debatable. Based upon Federal Reserve statistics of 1933, approximately 50 per cent of the gold coin in circulation was actually surrendered to the Federal Reserve (51:461-462). This figure can be regarded as remarkable from either of two extreme points of view. From one standpoint, the American people did not cooperate well with their government, surrendering only 50 per cent of outstanding gold coin despite government declarations that a national financial crisis existed. From a different standpoint, the confiscation was remarkable in that never before in human history had so large a quantity of gold been taken from so many by

so few with such slight protest.

Since American citizens were no longer permitted to use gold as money and solid confidence in the banking system had been achieved through government guarantee of deposits, it would seem that all constraints on credit expansion had finally been abolished. The dollar had surely become pure fiat money and one ought at this point to drop the cumbersome term "money substitute" and refer to bank notes and accounting-entry dollars, in the modern vernacular, as "money." The accuracy of these views is a subject for further examination.

The Aftermath of the Great Depression

Under the Gold Reserve Act of 1934, the dollar was redefined as $1/35$ of an ounce of gold and all gold coins surrendered were melted down and added to the stock of bullion. Title to all American gold was vested in the United States Government and no further gold coins were minted. The fact that United States citizens could no longer legally possess monetary gold has led to the common misconception that gold was at that point demonitized and the dollar was no longer "as good as gold."

On the contrary, all that really occurred in the 1933 gold confiscation was transfer of title from citizens to government together with a substantial decline in world gold demand. A reduction in demand resulted from removal of Americans, who accounted for a large share of the world's wealth, from the gold market by means of a gold prohibition.

Prior to 1933 foreign dollar holders may have doubted the capability of the United States to redeem. Such doubt was relieved by three factors resulting from the Reserve Act in 1934:

1. Loss of American citizens' right to claim gold in exchange for dollars.
2. Reduction in the gold content of each claim (dollar) by nearly 43 per cent (from 1/20 ounce to 1/35 ounce).
3. Availability of all but 40 per cent of American gold stock to meet foreign claims.

It appears that gold had been considerably undervalued in terms of paper currency, or was overvalued after 1933, as domestic gold production nearly tripled from 1933 to 1940 and gold stock in the Treasury showed a corresponding increase (29:473). The latter increase may have been in part attributable to the developing threat of war in Europe in the late 1930's. The final result of these developments was the emergence of the dollar as "better than gold" for foreign claimants.

The Great Depression continued for many Americans throughout World War II. Neither those living abroad in tents nor those who remained at home and accumulated War Bonds and ration coupons can be regarded as enjoying a substantially improved standard of living. However the postponed spending was not to result in the degree of improvement in living standards which many expected following the end of the War in 1945. From 1939 through 1945 the Consumer Price Index increased by 30 per cent and the

Wholesale Index by nearly 40 per cent (29:589). Thus the saved dollars depreciated in purchasing power by a percentage greater than the interest return on War Bonds. Once again war expenses had been partially met by depreciation of the currency.

By the end of World War II, the United States held nearly 60 per cent of world monetary gold reserves. In the postwar period, the Marshall Plan and other foreign aid programs and investments caused the continuing transfer of dollar credits and currency abroad, but despite this drain, monetary gold holdings mounted to a peak of 24.6 billion dollars in 1949 (49:4).

Following World War II a significant change in the goals of Federal Reserve monetary policy occurred. During World War I the primary goal had been the sale of government securities, while during World War II the goal altered slightly to that of maintaining stable prices for government securities (49:6). However a new mandate for government intervention in the American economy came with passage of the Employment Act of 1946. Although fiscal policy-- changes in government expenditures and tax receipts-- initially received emphasis in government efforts to reduce unemployment and insure prosperity, inevitably monetary policy began to receive increased emphasis. By 1950 the Federal Reserve had clearly stated goals of (49:3-5):

1. Economic growth
2. Price stability

3. Balance of payments equilibrium
4. Full employment

An indication of which of these four goals actually prevailed was provided by Senate Finance Committee hearings conducted in 1958. Senator Robert S. Kerr represented a small group of senators and congressmen who were critical of Federal Reserve policy. During the hearings, Senator Kerr asserted that the Employment Act of 1946 was actually "a message to the Federal Reserve Board." There ensued a dialogue between then Federal Reserve Board Chairman, William McChesney Martin, and Senator Kerr as follows (17: 650):

Sen. Kerr: You cannot point to any specific language (in the 1946-Employment Act) that says to the Federal Reserve bank 'maintain the stable value of the dollar,' can you?

Mr. Martin: ...It is not in the Act as such, but--

Sen. Kerr: ... Now I want to ask you a question: Which do you regard as the more important, stabilized value of the dollar or stabilized maximum employment?

Mr. Martin: Maximum employment, every time. No question about it.

As a rough indication of Reserve System performance during the period of 1950-60, selected statistics are summarized in Table V. Table V indicates that price stability, if one takes this term to mean no change in prices, was not a characteristic of the period covered. Another data-based observation is that "price stability" depends in large measure on the selection of prices to be included in the index. The change in Gross National Product Index was nearly double that of the Wholesale Price Index, a point

which will be discussed below in considering meaningfulness of aggregate indicators in general. Perhaps the most significant change during the period was the 28 per cent decrease in gold stock. This decrease accompanied a total balance of payments deficit for the period of \$22 billion (49:Table 1.1)

Table V

Summary of Selected Economic Indicators 1950-1960

<u>Indicator</u>	<u>Change Per Cent</u>
Real Gross National Product	37
Consumer Price Index	23
Wholesale Price Index	16
Gross National Product Price Index	29
Demand Deposits	26
Time Deposits	88
Gold Stock	28d

d indicates decrease	(Data Source: 60:Table 4.1 and 49:Table 1.1)

During the eighteen years following 1948, a balance of payments surplus occurred only in 1957, and that surplus was negligible in amount. The existence of this balance of payments factor and gold drain did not, however, create concern serious enough to provoke immediate corrective action by the Government.

The change in the ratio of demand and time deposits revealed by Table V is also significant. Since reserve requirements on time deposits have always been lower than on demand deposits, this relative change had the effect of

supplying additional reserves to the system, thereby expanding the base for credit expansion. The paper and accounting-entry money supply had been expanding rapidly at the same time gold stock was shrinking. By 1960 the gold stock stood at \$17.8 billion (49:Table 1.1) while the amount of money substitutes, in the form of currency and demand deposits (M_1), was \$141 billion. A broader measure inclusive of time and savings deposits (M_2) amounted to nearly \$300 billion (73:266). It required no sophisticated calculations to perceive that if the trends extant in the 1950's were to continue, a point would soon be reached when dollar convertibility into gold would again be in doubt.

The major post-war developments through 1960 may be briefly summarized as follows:

1. Federal Reserve System goals shifted from emphasis on funding government debt to influencing American economic development through monetary intervention.
2. Immediately following the War, the United States held a majority of world gold stock, most of which (60 per cent) was available to meet international claims on the dollar.
3. The quantity of foreign claims upon American gold (dollar holdings) grew rapidly after 1950.
4. A secular balance of payments deficit developed and was accompanied by a substantial drain upon United States' gold stock.

The Developing Monetary Crisis of the 1960's

The background material required for understanding the critical monetary situation which became apparent in the 1960's has already been presented. It is simply necessary

to recall that under the Bretton Woods Agreement (page 63), the United States became the principle "gold bank" of the IMF member nations.

Countries receiving dollars, by whatever means, might elect to spend the dollars in the United States, to retain them as domestic reserves, or to exchange them for gold at the rate of 1/35 ounce per dollar. The dollar was an international money substitute and as such, subject to the usual market constraints upon substitute issue. The central banks of other countries may be viewed as essentially independent banks, holding gold and claims upon United States' gold as a basis upon which to issue their own notes. Should these banks elect to hold all gold and no substitutes, then the quantity of dollars held abroad (officially) would shrink to zero. If confidence in the ability of the United States to redeem were lost, then one would expect a "run" on the gold stock of the American central bank and treasury.

There are only three basic ways to deal with such a run:

1. By redemption of all claims presented, thereby subduing the run and restoring lost confidence.
2. By devaluation, so that the existing gold stock can be "stretched" to cover the claims presented.
3. Through delay or outright refusal to redeem thereby revealing the existence of insolvency.

Both the second and third responses to a run would generally provoke the animosity of foreign dollar holders. Devaluation of an international reserve currency cannot be taken lightly as there results a de facto reduction in gold reserves in

all countries holding that currency. This factor can cause world-wide domestic currency problems and impair confidence to such an extent that the reserve currency is no longer acceptable for reserve purposes (36:537).

It requires only a decrease in the level of confidence for a chronic balance-of-payments deficit to become a full-scale run. As discussed in the preceding section, the United States experienced this kind of deficit throughout the 1950s. But runs require precipitating events, however subtle those events may be.

One such event occurred in 1958 when most European currencies again became convertible into gold. Restoration of convertibility in Europe implied a weakening of demand for dollar reserves and an increased demand for gold reserves. The 1958 return to power of Charles de Gaulle as President of France also played a part in the developing dollar crisis.

De Gaulle, in the tradition of Napoleon, chose to restore order in a monetarily and politically chaotic France by balancing budgets and paying cash. The selection of Jacques Rueff, a staunch advocate of the international gold standard, as presidential financial advisor implied that de Gaulle intended to establish the franc as a currency solidly backed by gold.

Rueff was one of the first monetary economists to publicly criticize the gold exchange standard. In a 1965 interview with a British periodical, The Economist,

Rueff said (71:76-83):

...As early as 16 March 1961 I made clear to him (General de Gaulle) that we had more or less stabilized the franc in terms of the dollar and that we were strongly interested in the stability and the solvency of the dollar itself. And therefore, that we had not only the right, but the duty to see that there was no danger in the money standard that was the base of our own money...I wrote in 1961 that the West was risking a credit collapse and that the gold-exchange standard was a great danger for Western Civilization. If I did so, it is because I am convinced--and I am very emphatic on this point--that the gold-exchange standard attains to such a degree of absurdity that no human brain having the power to reason can defend it. What is the essence of the system, and what is its difference from the gold standard? It is that when a country with a key currency runs a balance-of-payments deficit--that is to say, the United States, for example--it pays the creditor country dollars, which end up with the latter's central bank. But the dollars are of no use in Bonn or in Tokyo or in Paris. The very same day, they are reloaned to the New York money market, so that they return to the place of origin. Thus the debtor country does not lose what the creditor country has gained. So the key-currency country never feels the effect of a deficit in its balance of payments. And the main consequence is that there is no reason whatever for the deficit to disappear, because it does not appear...my friends in Washington told me in 1962 that I was wrong in thinking that the deficit of the balance of payments in the United States would survive as long as the gold-exchange standard survived. They told me they had a timetable according to which the deficit would be reduced by one-half at the end of 1962, and disappear at the end of 1963. But it did not; it could not, because the very essence of the gold-exchange standard is to maintain the deficit of reserve currency countries...I am absolutely convinced that the deficit of the balance of payments of the United States will not disappear as long as we maintain the gold-exchange standard.

As a partial solution to what he perceived as developing international monetary problems, Rueff suggested a 50 per cent devaluation of the dollar and a gradual return to an international gold standard. His views were

widely represented in the United States as an attack upon the dollar and as representative of the innate hostility of the de Gaulle regime toward American policy. Neglecting domestic considerations, this appears a strange reception for a proposal that would have effectively doubled United States gold reserves while reducing by one-half French claims upon those reserves. However unwelcome Rueff's proposals, his predictions were subsequently realized.

Although domestic market constraints on expansionist monetary policy in the United States had been largely eliminated, there existed legal constraints. There was, for instance, the 40 per cent gold backing required for Federal Reserve notes. The history of these legal constraints is summarized in Table VI.

Table VI
Summary History of Legal Constraints
on Domestic Monetary Expansion

<u>Date</u>	<u>Requirement</u>
1934	Federal Reserve System must hold 40 per cent of outstanding notes and 35 per cent of other liabilities in gold.
1945	Liability holding requirement reduced to 25 per cent.
1965	Liability holding requirement eliminated.
March, 1968	All gold holding requirements eliminated.
June, 1968	Redemption in silver no longer required.

As each reserve requirement was reached or exceeded in the course of expansion, that limit was removed. In 1968 the final dollar link with precious metal was severed, permitting expansion to continue substantially uninhibited by domestic legal constraints.

It may be inferred from action taken by the Kennedy administration in 1961 that a significant number of Americans were becoming aware of the impending dollar crisis. In that year the Office of Domestic Gold and Silver Operations was created by the United States Treasury to issue regulations controlling the acquisition and disposal of gold and silver in bullion or coin form. Also, an executive order was issued forbidding Americans the ownership of gold in foreign countries and requiring that any gold already owned be sold at once. The issuance of this order made no sense unless Treasury officials had knowledge of a significant move into gold by American investors who were anticipating devaluation. Since the possession of gold outside of the United States would mean payment of storage charges and loss of interest for Americans, there must have existed a strong opinion that devaluation would occur.

A further occurrence of the 1960's was a rapid expansion of the domestic dollar supply. This expansion was not a simple product of converging economic events, but was based upon a conscious policy of the Johnson Administration popularized as "providing both guns and butter" at the height of the war effort in Southeast Asia. This policy translated

into maintenance of a high level of government spending with no increase in taxes. The Federal Reserve System, therefore, was called upon to monetize the resultant government deficits. In the three years following initiation of this policy in 1965, Federal Reserve holdings of government securities increased by 50 per cent and currency in circulation increased 20 per cent (60:154).

The Consumer Price Index, which one would not expect to immediately reflect an increase in demand, rose at an annual rate of more than 6 per cent from 1966 through 1970 (36:381). This rapid rise in the domestic price structure was greater than in much of the rest of the industrialized world and discouraged the purchase of American goods, further aggravating the balance of payments problem.

The final, probably inevitable, result of the events and circumstances discussed above was a run on the United States' gold stock. The run became of such magnitude that in 1971, the United States Government was forced to choose between continuing redemption, with probable exhaustion of the remaining \$10 billion in gold stock, or refusing further redemption. The latter course was chosen. President Nixon "closed the gold window" with his Executive Statement of August 15, 1971. Justification for the suspension of convertibility appears in the following extract from that statement:

In the past seven years there has been an average of an international monetary crisis every year. Who gains from the crises? Not the workman; not the investor; and not the real

producers of wealth. The gainers are international money speculators. Because they thrive on crises, they help create them.

In recent weeks, the speculators have been waging an all-out war on the American dollar. The strength of a nation's currency is based on the strength of that nation's economy--and the American economy is by far the strongest in the world. Accordingly, I have directed the Secretary of the Treasury to take the action necessary to defend the dollar against the speculators...to suspend, temporarily, the convertibility of the dollar into gold or other reserve assets, except in amounts and conditions determined to be in the interest of monetary stability and in the best interest of the United States.

Now, what is this action, which is very technical? What does it mean for you? Let me lay to rest the bugaboo of what is called devaluation.

If you want to buy a foreign car or take a trip abroad, market conditions may cause your dollar to buy slightly less. But if you are among the overwhelming majority of Americans who buy American-made products in America, your dollar will be worth just as much tomorrow as it is today. The effect of this action, in other words, will be to stabilize the dollar.

The reader may detect a similarity of tone and implication in this statement to that of the decree issued by Diocletian in 301 A.D. (page 25) and President Roosevelt's emergency proclamation of 1933 (page 62). It appears that once again the forces of greed and speculation had been brought to bear on state-issued money causing great distress to the state and necessitating drastic remedial measures. The question which logically follows is: why have greedy and short-sighted speculators been able for more than 600 years to launch "wars" on money issued by governments and why haven't governments eliminated such activities? The answer is as simple, or as complex, as human nature.

Speculators are simply individuals or groups attempting to predict events to come. After arriving at an estimate of the future, speculators act in what they, correctly or incorrectly, perceive to be their best interests. To this writer's knowledge, neither the threat of guillotine nor firing squad has been successful in sustained suppression of this practice.

Chapter III was concluded with the observation that preservation of the link of the dollar with gold would depend in large measure upon the performance of the American banking system, specifically, the Federal Reserve. Whether through accident or intent, this link was ultimately severed in 1971. In attempting to understand the contemporary inflationary environment, one needs to have some idea of how this recent change in the status of the dollar may effect future purchasing power. It is possible that certain monetary relationships which have appeared statistically significant over the past half-century or so, will no longer hold in this changed environment. In the course of attempting to discover the implications of the change, one may also arrive at an estimate of the validity, if any, of President Nixon's assertion that the effect of inconvertibility would be "to stabilize the dollar" (page 117).

VI. Contemporary Monetary Developments (1961-1971)

The suspension of dollar convertibility in 1971 and the circumstances leading thereto have been discussed previously. However no consideration was given to efforts by the world's major governments and the IMF, to avert the impending monetary crisis.

One of the most important of these efforts originated in a development largely unnoticed by the public and hardly mentioned by the popular press. The London market price of gold increased from \$35.25 per ounce in September of 1960 to \$41.00 in October. An increase of 16 per cent in this brief period signaled that market traders had become dubious of the United States' pledge to exchange one ounce of gold for 35 paper dollars. The signal was observed by government officials who reacted, not with an effort to correct underlying monetary problems, but with an attack upon the signal. For the purpose of discussing recent monetary developments, therefore, the term "contemporary" will be considered as that period beginning with official efforts to suppress the gold signal in the early 1960s.

The Gold Pool

When the price of gold on the London market exceeded \$40 per ounce, officials of the Bank of England held hasty telephone conferences with gold experts at the Federal Reserve Bank of New York. An agreement was

reached that the Bank of England would immediately sell gold on the market in sufficient quantities to drive the price back to the usual level of \$35.17 per ounce (31:117-8).

By the end of 1967, the Gold Pool had been forced to sell over \$3.5 billion of member holdings to private purchasers; still the demand persisted (36:541). By March of 1968 demand reached unprecedented proportions and the United States, which had been supplying 59 per cent of Pool requirements following the withdrawal of France, had been reduced to a gold reserve level of \$10 billion. On March 15, in response to urgent requests from the Federal Reserve in Washington, the British government agreed to temporarily close the London gold market while central bankers determined what should be done. When the market opened again two weeks later, the Gold Pool had vanished, to be replaced by the Two-tiered Gold System (31:118-9).

The Two-tiered Gold System

A new set of monetary rules resulted from the meeting of central bankers held in the wake of the Gold Pool's collapse. Under those rules the United States Government would continue to redeem dollars at the previous rate (one tier) but only in transactions with monetary authorities. The market price of gold (second tier) would then be allowed to fluctuate without further sales of central

bank holdings.

Other than by abandonment of attempts to control the market price of gold, it is not immediately obvious how the dollar-gold relationship under the Two-tiered System differed from its predecessor. For a suggestion on the nature and purpose of the new system, it is instructive to refer to an article by Jacques Rueff, the French economist whose early predictions on the balance of payments problem had been proven accurate. In the February, 1970 issue of Le Monde, Rueff wrote (71:184-5,187):

Thus the ultimate goal and underlying reason of the reforms of 17 March 1968 become clear. Their purpose is to force anybody seeking to convert dollars into gold to go through the narrow channel of some U.S. monetary authority, thereby making the request for conversion obvious and conspicuous. The steps taken enable the American authorities to watch with alertness and exert "friendly" pressure on non-American monetary officials, so that they will refrain from requesting conversion operations that they would like to effect. In other words, so that they will agree to hold on to the dollars that they were tempted to get rid of, and while keeping them, invest them in the U.S. market.

This kind of control was not feasible as long as the London and related gold markets existed. From now on, such panicky unloadings of dollars as occurred in the early part of 1968 will be impossible to the extent--but only to the extent--that the pressure exerted by the U.S. authorities on non-U.S. monetary authorities holding dollars remains effective. The dollar will have become an inconvertible currency for all countries that are under U.S. influence because they need American military protection (like Germany) or want U.S. friendship for political reasons or depend on the United States economically...What would happen if residual requests for conversion of dollars into foreign exchange or gold in excess of offsetting operations in exchange markets were more than the United States could satisfy? Clearly, the only conversion window still open--i.e., the one run by the American monetary authorities--would have to be closed.

The view expressed by Rueff involves in part an assessment of the motives of others and to that extent is subjective and non-verifiable. The essential point is that the new system did permit selective and discriminatory control of dollar conversion and could be employed as a device to postpone default or devaluation. Rueff's warning of impending default preceded the event by six months and came at a time when central bankers and governments were unanimously declaring that dollar convertibility and the Two-tiered System would endure.

Special Drawing Rights

The extensive loss of Gold Pool reserves that resulted from the run on the dollar in the late 1960s prompted a search for some additional means by which to support the more rapidly depreciating national currencies. In 1970 an instrument was created that would help coordinate credit expansion on an international scale, Special Drawing Rights (SDR's).

SDR's were brought into existence by the International Monetary Fund (IMF) through accounting entries, that is, an international fiat money was created. The first issue of \$3.5 billion, was to be succeeded by an issue of \$3 billion in each of the years 1971 and 1972. Further expansion would require approval by 85 per cent of the total IMF member vote. The new SDR credits were divided among IMF members in proportion to each member's original

credit with the Fund. Should one country need foreign currency with which to support the exchange rate of its own currency, SDR credits might be used to acquire the desired currency.

The reader, having become familiar with the theories of John Law, may be inclined toward the conclusion that SDR's were no more than internationalized assignats. It is necessary to caution against this conclusion and to interpose, at this point, the prevailing contemporary view as expressed in a 1971 text on money and banking (36:544):

The importance of SDR's should be clear. They represent a net addition to the world's supply of international reserves and have the potential, at least, to solve future liquidity problems.... If the SDR experiment succeeds, the long-time bellwether of international finance--gold--may be on the way out. For if the supply of SDR's should be increased by \$3 billion per year, its total will soon surpass the world's official gold stocks. (Underlining is by the writer)

This quotation agrees with officially stated views on the SDR. Britain's Chancellor of the Exchequer hailed creation of the new reserve asset as "the most important step forward in monetary cooperation since the Bretton Woods conference of 1944" (31:223). The United States view was represented by Undersecretary of the Treasury, Paul Volcker, quoted in the September 21, 1972 issue of Commercial and Financial Chronicle as follows:

The two-tier gold system has been one means of coming to grips with destabilizing speculation in gold markets. The adoption of the SDR gave explicit international acknowledgement to the fact that new

means needed to be found to provide an orderly and satisfactory means of assuring appropriate growth in world reserves.

It would indeed seem that by means of this new "asset," the barriers to unlimited liquidity had been substantially reduced. The central banks of the world had been united, through IMF pledges and mechanisms, in mutual support of national currencies--thus smoothing imbalances in inter-bank expansion rates. The constraint of maintaining gold convertibility was removed by United States suspension of payment in 1971. As long as central bank cooperation could be maintained there existed only one significant market constraint on the expansion of credit: the extent to which individuals were willing to accept fiat money in exchange for goods and services.

The Fiat Dollar: A Question for the Future

The term "money substitutes" has been persistently employed in earlier portions of this thesis in reference to paper currency, bank notes, checks and accounting entries. This usage stemmed, not from any personal preference for the language of Daniel Webster (pages 72-74) or the classical economists, but the need to preserve technical accuracy as well as to avoid semantic bias in the presentation of early views on the subject of money.

Prior to 1971, the United States dollar was defined by law as a specific weight of gold. There existed no

intervening legislation which redefined the dollar as a numeral on a signed slip of paper or an accounting entry. Therefore, the latter items were substitutes for gold, the actual money. The process of transforming the dollar into fiat money extended over a period of 38 years and was accomplished by gradually broadening the scope of default to include an ever larger number of claim or substitute holders.

As long as there existed a mechanism for redeeming dollar claims in a specified weight of gold and the dollar was not redefined by legislation, gold was the money of the United States and was so considered by much of the world. This important distinction should be preserved, for there is no question of the serviceability of gold as money; it has been so employed for more than two-thousand years. Nor is there a question of the utility of money substitutes, which have been in use for nearly as long.

The vital question to be considered in the wake of the 1971 suspension is this: have conditions, as well as human values and knowledge, so altered in the recent past that it is now possible to establish an enduring world-wide fiat money system? The writer believes that to respond with certainty to this question would presuppose a level of knowledge which mankind has yet to attain. It has not been a purpose of this review to suggest an answer, but to develop and clarify this question. If the

reader has received an impression that the preceding material has been biased through employment of antiquated terminology and selective editing of monetary history, that impression is unfortunate. The intent throughout has been to counter an apparent widespread contemporary conviction that the question was answered affirmatively, long ago.

It is hoped, at this point, that the words "adventure in creative finance"(page 92) and "experiment" (page 123) have taken on new meaning for the reader and that the contemporary world economic situation is viewed in just such terms. It is also hoped that a basis has been provided for objective evaluation of the recent monetary developments to be considered next, as well as the inflation models to follow.

Political Factors Bearing upon Monetary and Credit Expansion

Since the market and legal constraints upon expansion had been progressively weakened, first on a national, then on an international level, political factors assumed increased importance. Some of these factors encouraged, while others retarded, the progress of expansion thus providing a convenient analytical division for further consideration.

Expansionist Political Factors. It is not the present purpose to explore the depth or longevity of the prosperity which seems to result from an increase in the rate of

monetary or credit expansion. The reader has seen that, historically, a strong case can be made for the existence of this phenomenon. But historical evidence is not required to support the case that low interest rates--popularly termed "easy money"--are widely held to promote investment, production and consumption (a boom). The existence of this opinion is a fact subject to daily verification in financial journals.

Since economic prosperity is almost a prerequisite of political popularity, there exists a strong motive among those who aspire to remain in political office to promote domestic expansion. This holds true for both elected officials and their dependent appointees. Because most major governments of the Western World, as well as Japan, consist in part of elected officials, particularly in the highest offices, there is a "built-in" impetus for expansion in the world monetary system. This impetus becomes especially powerful in the period immediately preceding general elections in each country.

It is also a fact that over the past few decades, most governments have assumed the task of providing increased services for their people in such forms as welfare payments, health care, unemployment benefits, research programs etc. Since those services must be paid for and taxes are always an unpopular method of financing, there exists a motive for further creation and monetization of government debt. This motive becomes

even more powerful in times of war, natural disaster or recession.

Private interests also may benefit from their ability to exert concerted political pressure upon the existing government monetary and regulatory agencies. There are several large private groups which can directly benefit from expansionism:

1. Large net debtors benefit through the ability to satisfy previously incurred debt with money of decreased purchasing power.

2. Industries which produce items sold largely on credit (for example, heavy appliances, automobiles and houses) benefit from low interest rates and ready availability of consumer credit. Leaders in these industries can hardly be expected to urge maintenance of a slow expansion rate.

3. Exporters or firms having large foreign markets for their products have a vested interest in a low foreign exchange value for domestic currency.

4. Banking interests benefit from lower reserve requirements and, other factors constant, a decrease in interest rates. Low interest rates stimulate both consumer and commercial borrowing thus encouraging credit expansion and increasing the revenues from loan activity.

5. Labor unions may also exert political pressure for expansionist policies, but in this case the effect is more indirect and dependent upon the extent to which

certain theories predominate within the higher echelons of organized labor. In general, labor unions have favored increased government expenditures--which may or may not be expansionist, depending upon the method of financing--and easy credit policies. Consequently, labor political support has tended toward those candidates favoring expansion.

The degree to which any of the foregoing private interests are successful in bringing about expansion, either through direct political pressure or support of appropriate political candidates, is a function of the existing intellectual climate. If economists as intellectuals sanction expansion, either actively or through failure to express disapproval, the climate is highly favorable for successful promotion by direct beneficiaries.

Anti-expansionist Political Factors. The potential direct beneficiaries of expansion are numerous and often politically effective. But even more numerous and potentially effective are those who are not directly benefited. Of these, by far the most important category is the consumer. This group consists of every citizen of a given country, and with reference to the world monetary system, of every person in the world who purchases goods by means of fiat money. In this sense even direct beneficiaries of expansion are included in a potential opposition class.

In fact, although the potential is great, the con-

sumer class is usually not politically effective in retarding expansion for the following reasons:

1. Consumers, as such, have no direct interest in expansion apart from the extent to which they believe prices are thereby increased.
2. Prices may not increase during a period of expansion, but if there is an increase, it may not be of sufficient magnitude to attract consumer attention.
3. If a general price increase is noticed in the course of a sustained expansion it may not be attributed to that expansion.
4. If an expansion is of such magnitude and duration that a large increase in prices occurs, it may still be possible to divert adverse consumer reaction by identifying and propagandizing other factors as causal.
5. Consumers who associate a rise in prices with an expansionist monetary policy may, correctly or incorrectly, believe themselves to be net beneficiaries of that policy, and consequently abstain from political opposition.

An additional political factor that may deter a relatively extreme rate of expansion by one or a small number of nations is the existence of a large amount of foreign-held debt. While individual citizens may be relatively ineffective in preventing loss of purchasing power on securities issued by their government, foreign central banks holding large amounts of these securities are not. A central bank creditor is inclined to notice any rapid decline in purchasing power of currencies and securities in its reserves and may threaten to "dump" these holdings on the market unless the expansionist country agrees to revise domestic monetary policy.

Since the dumping of large amounts of a nation's currency and securities can, under the right circumstances, totally ruin the credit of that nation, such a threat when credible, may be effective. To actually carry out the threat would mean that the IMF currency support agreements had broken down, that is, the system had failed and some new arrangements would have to be sought. The threat of dumping or of simply refusing to further support the currency of a highly expansionist country can thus be used by more conservative countries as a brake on national expansion rates.

The Political Implications of a Market Constraint. As long as countries practiced monetary expansion at comparable rates, or at least supported weaker currencies so that exchange rates remained relatively fixed, the political factors were biased heavily in favor of global expansion. The consumer class would come into effective play as a retarding political factor only as the result of undesirable effects of such expansion, namely, a noticeable increase in the general price level. But if the general price level were to increase beyond a certain critical rate, or from a different aspect, if currencies were perceived to be depreciating rapidly, a market constraint might come into play.

The discussion on SDR's was concluded with the observation that the remaining significant market constraint on credit expansion, in the new world monetary system,

was the willingness of individuals to accept fiat money in exchange for goods (page 124). While this constraint is based upon the expressed preferences of individuals and groups in market transactions, the political implications of the constraint are of sufficient significance to merit consideration within a political context.

Historically, every government monetary system based purely upon fiat money has been destroyed in a comparatively brief period. The final stage of destruction is known as the "flight into goods." This expression was coined by the Germans in characterizing their experience with the paper mark in the early 1920's (52:427). The reader has seen that this phenomenon was observed in the last days of the Roman denarius (page 25), the French livres (page 35), the assignats (page 41) and the continental (page 49). In more recent times the flight into goods occurred in Germany in 1923, in China in 1947 and in Hungary and Austria following World War II. The phenomenon is also known as the flight from money and is simply the market expression of the unwillingness of individuals to accept fiat money in exchange for goods.

When this constraint has become operative, the political consequences have been--with only few exceptions--revolutionary. Many a dictator, including Napoleon, Hitler and Mao Tse Tung, has come into power in the wake of such an occurrence. It is the one market constraint on expansion which no government, however democratic or

tyrannical, has been able to surmount. Where the phenomenon has become almost a routine periodic condition, as in South America, great political instability exists and governments are overthrown frequently, occasionally with great violence.

One should not be misled, through accounts of previous experiences with fiat money, into believing that the total loss of purchasing power is a sudden spectacular event. The process is subtle at first, appearing usually over a period of years as a gradual loss of purchasing power. It is in the final stage of currency disintegration, usually of only a few weeks duration, that the stories of wheelbarrows full of money exchanging for a loaf of bread originate. This stage signals a realization by nearly everyone that the currency will shortly cease to serve as money.

Thus it is seen that the increasing refusal to accept a fiat money in exchange for goods (experienced as a secular decline in the purchasing power of money) serves as an early warning that expansion is proceeding at too great a rate. If perceived and correctly interpreted by monetary officials, such a signal would perhaps prompt sufficient political concern to bring a reduction in the rate of expansion. The question would then become one of determining how long such a reduction could be maintained and the probable consequences.

The Aftermath of Convertibility Suspension

The various political factors which influence the rate of credit expansion were treated in the preceding section on a rather speculative and abstract level. While the writer believes the preceding analysis to be logical and reasonable, it is necessary to examine what actually happened in the period following conversion of the dollar into fiat money to determine if the facts suggest that the analysis applies.

Unfortunately, the sources of information broaden at this point to include isolated accounts in newspapers, financial journals and magazine articles. While central banks and government agencies publish vast amounts of statistical data, neither central bankers nor political leaders are inclined to publicly discuss plans, policies, closed-door conferences and impending crises in other than general, usually optimistic terms. One must therefore supplement a conventional research approach with items which tend to indirectly reveal official views and concerns.

The Smithsonian Agreement. When President Nixon suspended convertibility of the dollar in August of 1971, he simultaneously imposed a 10 per cent surcharge on all imports. The imposition of this duty could be viewed as an attempt to correct the United States balance of payments deficit by decreasing the attractiveness of foreign goods. It might also be used as a bargaining tool in subsequent negotiations.

On December 17, 1971, representatives of the world's major financial powers convened at the Smithsonian Institution in Washington D.C. The meeting was heavily guarded and reporters were required to remain in a separate room without access to telephones. According to a Wall Street Journal article of that date, the United States would not agree to remove the 10 per cent surcharge unless trade concessions were forthcoming from the other conferees and other major currencies were revalued upward by 10 to 15 per cent (53:3).

There issued from this meeting the "Smithsonian Agreement" which President Nixon hailed as "the most significant monetary agreement in the history of the world." The United States achieved the pre-meeting goal of an upward revaluation of other major currencies and in turn devalued the dollar in terms of gold to \$38 per ounce. The latter step was primarily an accounting procedure since the United States gave no indication that convertibility would be re-established.

The major question, unresolved by the Smithsonian Agreement, was that of the disposition of billions of dollars rapidly accumulating in foreign central bank reserves as private holders rushed to exchange dollars for other currencies. At the beginning of 1971 foreign central bank holdings of United States Government securities totaled \$11.3 billion. By the end of the year that total had increased to nearly \$27 billion (22:10).

Exporting Inflation. At approximately that same time the Smithsonian Agreement was reached, the remark was commonly heard abroad that the United States was guilty of "exporting inflation." The meaning of this charge was made clear by Dr. Alfred Schaefer, Chairman of the Board of Switzerland's largest commercial bank. Dr. Schaefer expressed his views as follows (74:14):

The world's money supply is to a large extent determined in Washington, and partly in accordance with domestic policy considerations. The banker to the world has become a dollar factory that pays its debts with paper money. Budget and balance-of-payments deficits obviate the need for deflationary adjustment policies. The central banks must be satisfied with passive, technical cooperation. What spells liquidity for one nation spells inflation for another....The loosening of the "chain of gold" has de facto led to the dollar standard. The inflationary effects of special drawing rights could be avoided only if a supra-national control board existed--which it does not. Political, not objective criteria are the godfather of this new monetary creation. Through the use of special drawing rights, certain nations will be rewarded for their economic inactivity.

In recent years the Bretton Woods system has begun to teeter as a result of creeping inflation. Worldwide inflation is the most dangerous medicament for remedying ailing payment balances. The market and the public have very little faith left in monetary conferences, promises or denials--neither in those issued by the central banks, nor by governments which the public trusts even less.

Schaefer captured the essence of his views at another point in the presentation by observing that "the nation that prints the most money must not be allowed to have the most purchasing power (74:14)." Schaefer's perception of the Bretton Woods Agreement, the IMF currency support mechanisms and the role of gold as a constraint upon

expansion is in substantial agreement with that of the French economist Jacques Rueff (page 113).

The important point is not whether this perception is correct, but that it exists. If two prominent European financial authorities believe that the United States is engaged in the process of transferring wealth by means of the printing press, the belief may well be shared by foreign central bankers. Belief that there are no constraints on dollar production, could lead central bankers to act in their narrowly conceived national interest by liquidation of dollar holdings. The grave implications of such an action for the purchasing power of the dollar are apparent.

Schaefer's assertion, that "domestic policy considerations" are a factor in determining the world's money supply, should be noted; for in the discussion of political factors (pages 126-31) theoretical considerations suggested the dominance of expansionist domestic factors. The task then, is one of finding opinion and evidence to support or refute the assertion by Schaefer as well as the theoretically implied viewpoint.

One pertinent opinion on the relationship between expansionism and domestic politics is provided by William Rees-Mogg, an astute political observer and long-time editor of The London Times. According to Rees-Mogg :

In a democracy, with elections occurring frequently and regularly, there is always a powerful pressure for short-term expediency. Economic management is subordinated to the need to win elections;

some critics consider it is being so subordinated now; it certainly was so subordinated in every election since 1955, with the exception only of 1970, which was lost by the government of the day. Perhaps 1974 is a special case; the money supply was increased irresponsibly earlier in the Parliament but the election, also lost, was fought by the government on the issue of inflation (64:107).

Rees-Mogg speaks with authority from the British point of view, but a supporting view is needed from America, the source of the paper dollars of which Schaefer (page 136) was so critical. Support appears in a statement by Nathaniel Samuels, partner in a large New York banking firm (Kuhn, Loeb and Co.)--coincidentally, the same firm of which the early central banking advocate Paul Warburg (page 89) was a partner. Samuels (then Deputy Under Secretary of State for Economic Affairs) spoke during an IMF conference in Washington in 1972. He was quoted in the New York Times of October 1, 1972 as follows:

Hitherto, and perhaps even yet, the prevalent attitude has been that it was countries in deficit that had the obligation to undertake monetary and fiscal policies, or to undertake a fundamental restructuring of important sectors of their deficits and restore equilibrium to the system. Since sharp and prolonged deflationary policies have sometimes been necessary to achieve this goal and since such policies are no longer acceptable in any major country, a system based on such a limited view cannot function....Moreover, a situation in which the United States...is in prolonged deficit, partially for reasons that arise out of its role in the present international political, economic and security system, renders this narrow concept no longer viable.

Samuels confirms the Schaefer, and Rees-Mogg thesis that domestic policy takes precedence over balance of payments deficits, but invokes the world leadership role of

the United States as justification. Perhaps the burdens of leadership do justify the existence of perpetual deficits, but this situation certainly does not foster restraint in the creation of international monetary reserves.

It is clear that substantial authoritative support exists for the analytical model of expansionist bias in the monetary system. There remains the task of relating seemingly isolated real-world occurrences in a meaningful pattern of expansionist mechanisms and effects. This will be attempted in the next chapter in conjunction with a brief presentation of recent monetary developments.

VII A Scenario in Variable Rates of Expansion (1971-1976)

On February 8, 1972, less than two months after the Smithsonian Agreement, the following Associated Press news dispatch appeared in newspapers throughout the United States:

Money Growth Pushed

WASHINGTON (AP)-- The Federal Reserve System disclosed yesterday it began 1972 fostering a policy of sharper expansion of the nation's money supply to sustain growth of the economy. The system's Open Market Committee, which by its action has much to say on whether the nation goes through easy or tight money periods, voted in December to promote 'greater growth' in the money supply in the month ahead....Several members of the committee noted in December that more aggressive action was needed to stimulate the economy and expand employment. 'In their judgement the risk of rekindling inflationary pressures and expectation by such action was considerably less now than it had been earlier in the year,' the minutes of the December meeting said. President Nixon is looking for a strong assist from the Federal Reserve to deliver the 'very good year' he has promised for the nation's economy in 1972. His economic advisers have said they expected an accommodating monetary policy to be pursued by the Federal Reserve.

This Associated Press dispatch, when reviewed for historic perspective, suggests the following questions:

1. Why might President Nixon have desired that 1972 be a "very good year?"
2. Did the Federal Reserve expand the money supply?
3. Was 1972 a good year for the economy and if so, in what respects?
4. From an economic standpoint, what occurred during the three years following 1972?

The first of these questions is readily answered; 1972 was an election year. In November American citizens were to decide whether to return an incumbent President to office. The thought that an appearance of economic prosperity might

help insure re-election may never have occurred to President Nixon, but the incentive was present. To determine whether the Federal Reserve was successful in fostering expansion and a prosperous 1972, it is necessary to review some economic indicators for that year.

The Year of Rapid Expansion (1972)

Figure 1 indicates that the Federal Reserve increased the money supply (M1) at an annual rate in excess of 8.5 per cent in the year preceding the November 1972 election, the sharpest sustained increase since the United States entered the Korean War in 1950.

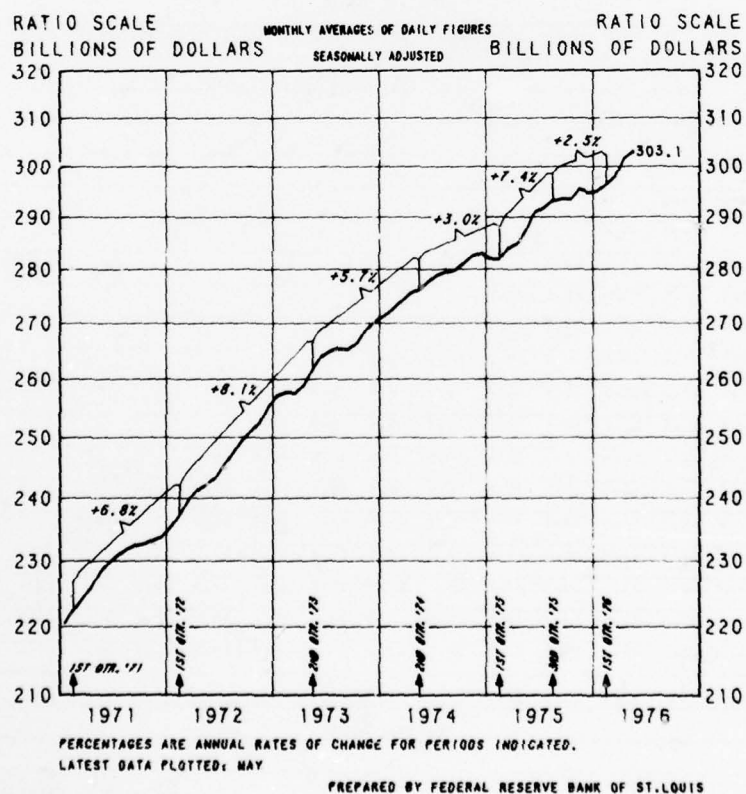


Fig. 1. Money Supply (M1)

Based upon historical observations one would expect the rapid injection of fiat money into an economy to induce a decline in interest rates. Figure 2 confirms this expectation. Short term (3- to 6-month) interest rates declined sharply from November of 1971 through the first quarter of 1972 and then increased gradually, reaching an approximate median level by the end of the year.

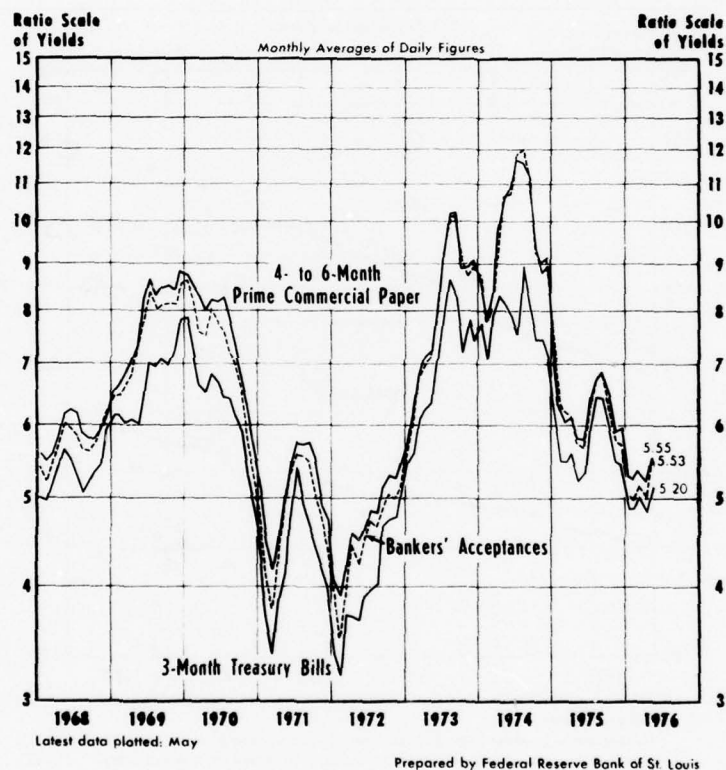


Fig. 2. Selected Interest Rates

As the new money diffused through the economy, one would expect consumers to increase purchases. Consumer buying should be reflected in an increase in retail sales, an expectation which can be verified by reference to

Figure 3. For the entire 1972 calendar year, retail sales increased by 14 per cent, an advance substantially in excess of the secular trend.

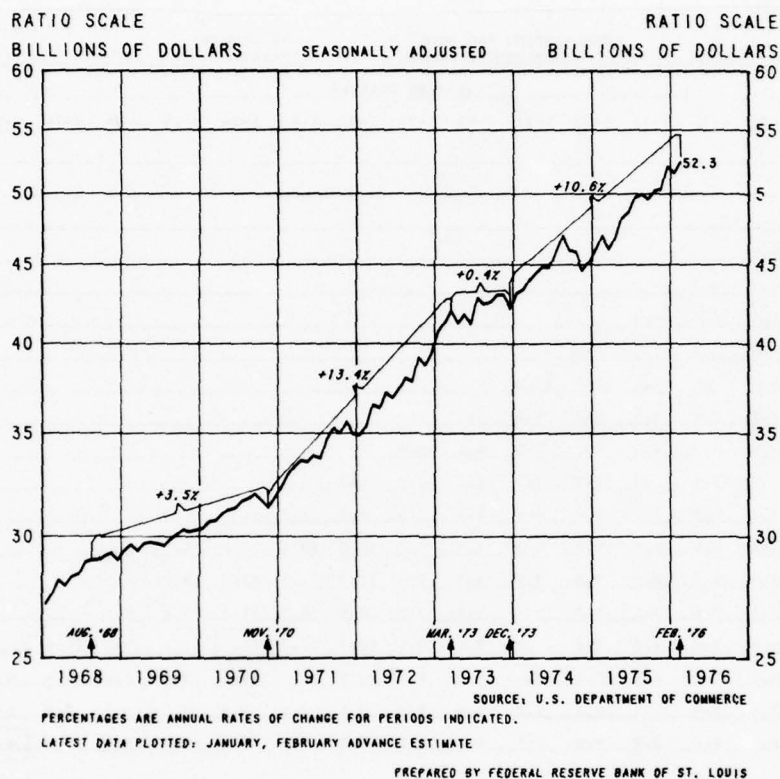


Fig. 3. Retail Sales

If the period preceding the increase in consumer spending were one of relatively depressed sales, then one might expect that manufacturers and retailers possessed inventories of which they had been unable to dispose. The shaded area in Figure 4 depicts such a period in the year 1970. Figure 4 further displays a graph of the ratio of inventories (in total dollar value) to dollar-sales

volume. This ratio declined rapidly during 1972 as consumer buying increased and inventories declined.

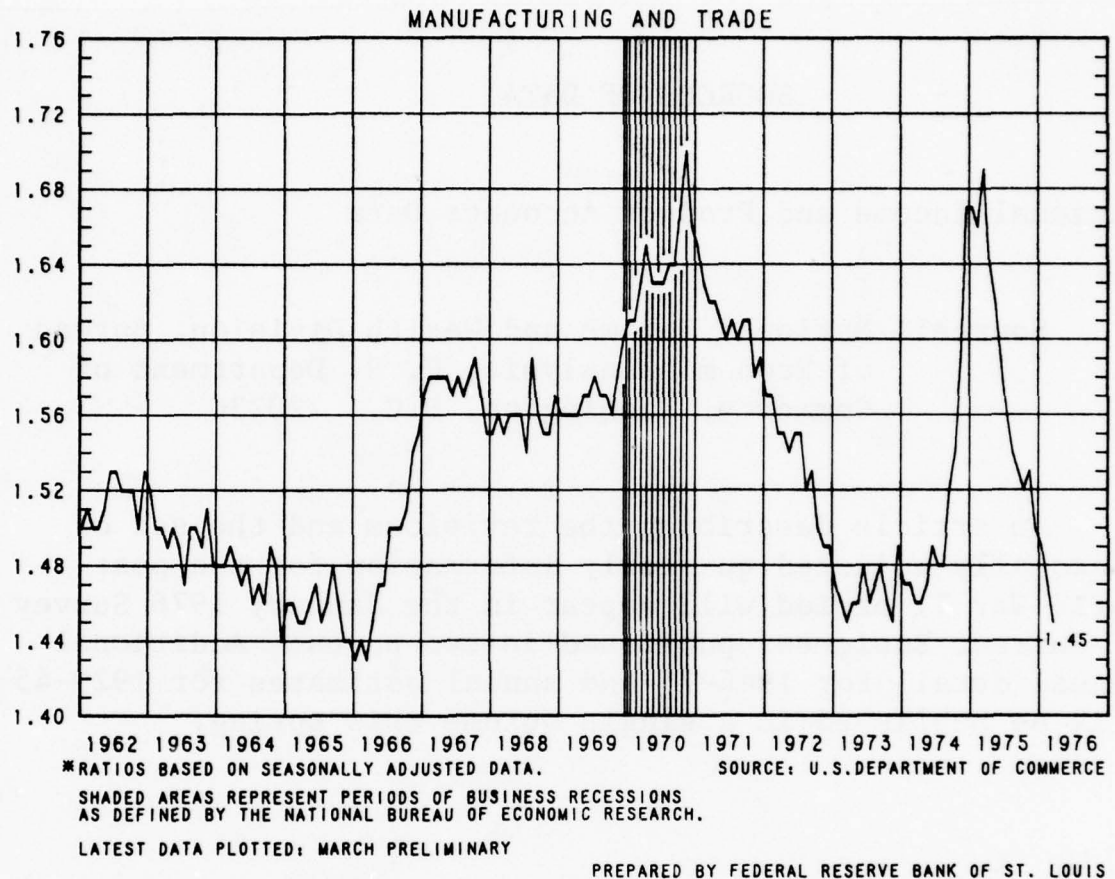


Fig. 4. Inventories Compared With Monthly Sales*

Declining inventories and an increased volume of sales should prompt retailers to seek financing for the purchase of goods and the employment of additional personnel. Manufacturers should, in turn, seek financing in response to improving order volume so that idle capacity could be brought into production and additional workers hired. The availability of low-interest money in combination with the

increased need for financing should result in an increased loan volume.

Figure 5 provides a ratio-scale graph of loans outstanding for all commercial banks. As the graph indicates, loan volume accelerated in mid-1972 increasing at an annual rate of 22.5 per cent for the subsequent 12-month period. The early months of 1972 served to: liquidate excess inventory, convince retailers and manufacturers that a sustained increase in demand had occurred and provide time for developing expansion plans. The relative lag that occurred in loan expansion thus appears entirely reasonable.

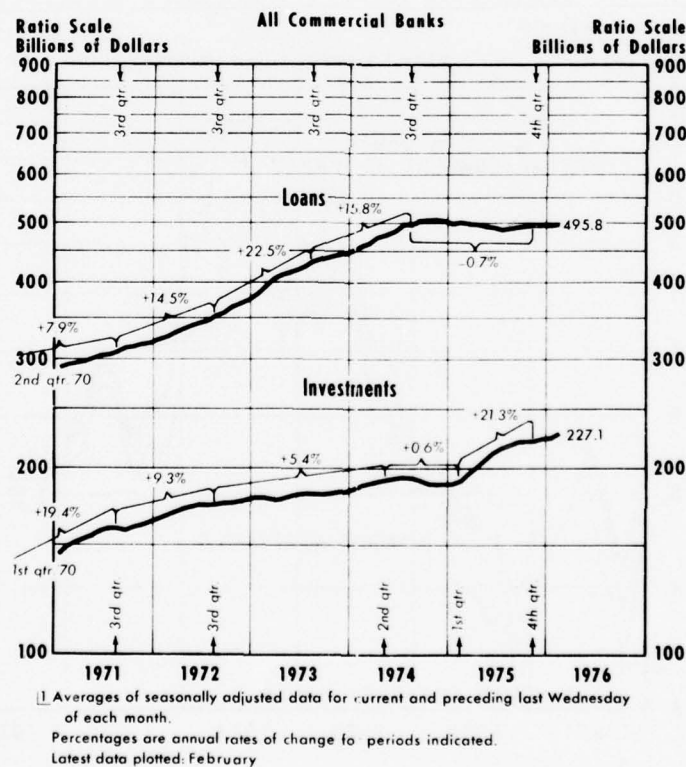


Fig. 5. Bank Loans and Investments

It is clear at this point that retailing, manufacturing, and banking interests ought to have benefited from the expansion of 1972. If one considers that labor, as a class, benefits from a reduction in unemployment, then 1972 was also a good year for labor. Figure 6 depicts unemployment rates in per cent of total civilian labor force and total number of heads of households for the years 1968-76. It is seen that unemployment declined during the first half of 1972 and then fell sharply in the final quarter, approximately in concert with the increase in commercial loan volume depicted in Figure 5.

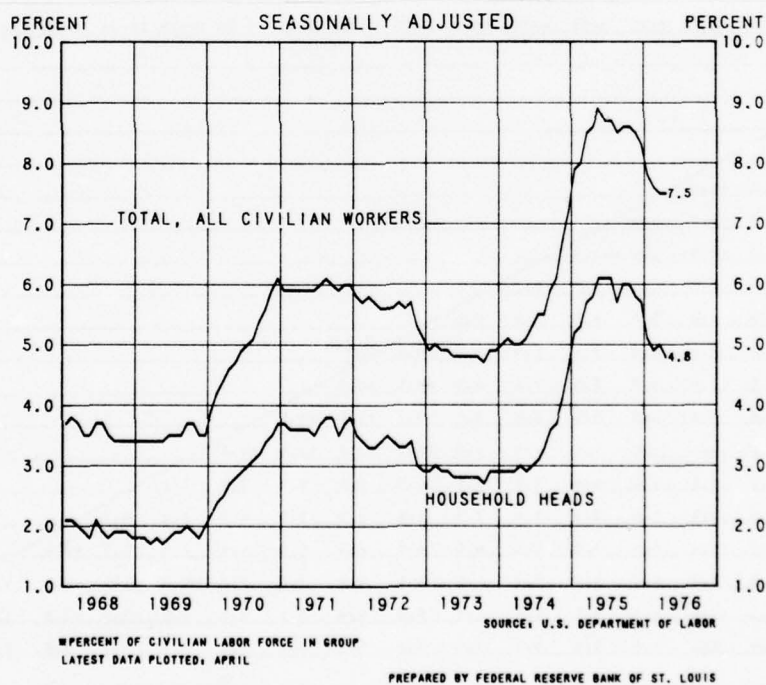


Fig. 6. Unemployment Rates*

In the analysis of expansionist political factors (pages 126-29) several classifications of private interests were shown to directly benefit from expansion. That analysis, however, was oriented toward the existence of a long term policy of expansionism rather than a relatively brief one-year period. From the immediately preceding discussion it appears that everyone--including the reelected President--was a beneficiary of the monetary expansion which was brought about in 1972.

Since such salutary effects were achieved by the simple act of printing treasury securities and creating accounting entries, there was surely ample incentive to continue, if not accelerate, the process. The election was past, it is true, but even had this been a motive for initiating the expansion, no political incumbent desires to become unpopular while in office. There appeared to be every reason to proceed upon an expansionist course and thereby insure that the temporary prosperity became permanent.

Yet the rate of creation of fiat money gradually began to decline in January of 1973, as depicted in Figure 2; a decline which persisted into the first quarter of 1975. The natural question to raise is: why did the Federal Reserve reduce the expansion rate following 1972?

The Years of Declining Expansion (1973-1975)

To resolve the question posed in the preceding section one should persist in the previous manner by searching for operation of the anti-expansionist political factors con-

ceptually developed on pages 129-131. Those factors were, in brief:

1. Refusal by foreign central banks to honor currency support agreements.
2. Disatisfaction among members of the consumer class.
3. The appearance of a "flight into goods."

The first of these factors would appear in the form of a so-called "run" or "crisis" in some one or more of the currencies actively traded on world markets. A crisis of this sort signals that private traders and financial interests have come to believe that a currency is overvalued in terms of other currencies. A persistent large-scale run might incline stronger currency countries to cease purchasing the weaker currency, resulting in a failure of the fixed-exchange rate system reaffirmed by the Smithsonian Agreement. Currency runs or crises then, serve as an early indication that the currency support factor may come into play.

International Currency Crises. The first major currency crisis came only six months after creation of the Smithsonian Agreement. The immediate casualty was the British pound rather than the dollar. This crisis stemmed largely from two factors: a rapid increase in Britain's dollar holdings and refusal of British monetary authorities to halt rapid growth in the domestic supply of money.

By June of 1972, the British economy was moving in pace with that of America. The unemployment rate was falling as

consumer and capital spending increased. Exports of British goods to America were at a high level and dollar reserves had grown to nearly double those of the preceding year. The domestic money supply was expanding at an annual rate of 20 per cent, the highest rate in British history (78:24).

This rapid growth in the money supply attracted international attention and aroused speculation that Britain might shortly be forced to devalue the pound. From the British point of view, however, the growth was in large part justified by the increase in dollar reserves. Britain, like other countries was continuing to treat the dollar as equivalent to a gold reserve holding. Thus each dollar held in reserve justified a multiple issue of pounds. Additionally, the Chancellor of the Exchequer revealed the dominance of domestic considerations by stating that the government would not allow exchange rates to stand in the way of Britain's economic recovery (78:24).

In the latter part of June a massive run on the pound developed. In the hectic foreign exchange trading of that period several billion dollars in reserves flowed from London in a matter of days. On June 23, the central banks of Britain and other major countries refused further support for the pound so that it became a "floating currency." Floating meant that the pound would move to a relative value determined primarily by market trading

rather than central bank intervention. By July 3, the pound had sunk seven per cent below its previous formal exchange rate (8:1).

A floating pound signified the disintegration of "the most significant monetary agreement in the history of the world" less than a year after formal accord was reached. The pound support operations had required the outlay of billions of dollars by central banks. The focus of world attention therefore shifted to the value of the dollar. The major question on the foreign exchange markets became: when would the dollar be devalued?

In order to stem the flood of dollars, many foreign countries imposed exchange controls. Switzerland went so far as to impose a negative interest rate on dollar deposits from abroad. The domestic money supply was increasing rapidly throughout the nations of Western Europe. IMF figures for the year ending in August 1972 showed a growth of 13 per cent in West Germany, 42 percent in Britain, 16 per cent in Italy, 12 per cent in France and 20 per cent in Switzerland (1:1). These countries were major purchasers of dollars, primarily as a result of honoring the Smithsonian Agreement and of yielding to domestic pressure for maintenance of low dollar prices on export goods.

Dollar crises were the hallmark of late 1972 and early 1973, but central banks continued to support the dollar. An Associated Press dispatch of February 2, 1973,

captured the crisis atmosphere of the time and reported the first major break in the dollar support agreements as follows:

LONDON (AP) -- At least 6 European central banks were obliged to support the dollar yesterday to keep it from falling below its Smithsonian trading limits. An over-all estimate of the amount of support was difficult, but a consensus was that the total exceeded \$300 million possibly by a substantial margin. In what has now become a familiar crisis atmosphere in the European interbank market, the dollar remained under pressure all day. Just before central banks were to close for the day, commercial banks started selling dollars, presumably to avoid taking an exchange risk by holding dollars any longer. Dealers estimated that the West German Bundesbank absorbed between \$100 million and \$200 million, the Belgian national bank between \$40 million and \$60 million...Earlier in Tokyo, the Bank of Japan also had to support the dollar, absorbing an estimated total of \$80 million...Despite this massive rescue operation, the dollar fell to new lows in Zurich and Frankfurt and closed at or below its floor level...After weeks of steady improvement as the Vietnam cease-fire agreement neared, the dollar weakened about 15 days ago. Then, within roughly one week, it was hit by a spate of bad news: --The worst foreign trade deficit in U.S. history. A big budget deficit forecast by President Nixon. -- International monetary fund experts meeting in Paris appeared no nearer an agreement on any reform of the monetary system that would help U.S. trade difficulties. The Swiss government refused to go on absorbing unwanted dollars and floated its franc...

The refusal by Switzerland to engage in further dollar support operations was especially significant. The United States served as a major market for the products of many Swiss manufacturers and food processors. Several large Swiss exporters as well as the tourist industry would suffer a loss of business if the franc were to appreciate relative to the dollar. Additionally, Switzerland held substantial amounts of United States

Government obligations and currency. Those holdings would decline in relative value if the dollar weakened further. Thus suspension of dollar support implied an assessment by Swiss officials that the Smithsonian exchange rates could not be maintained.

On February 13, 1973, the dollar was devalued an additional 10 per cent to \$42.22 per ounce of gold. One might at first suppose that this accomplished nothing. The United States had previously refused to redeem the dollar at a rate of $1/38$ of an ounce of gold and by devaluing, would simply refuse to redeem at $1/42$ of an ounce. The devaluation served, however, to increase the dollar value of domestic and IMF gold reserves. Additionally it created the clear impression that United States monetary officials were still thinking of the dollar in terms of gold and might be considering re-establishment of convertibility. It was hoped that this devaluation would remove some of the pressure on the dollar in foreign exchange markets.

On February 24, a new run developed amid persistent rumors that the Common Market countries would withdraw further support for the dollar and allow their currencies to float. On March 1, more than 3.5 billion dollars was dumped on foreign exchange markets. Official exchange markets were closed the following day and did not reopen until 17 days later. In the meantime, monetary officials met in Brussels, Paris and London to debate

what should be done.

Treasury Undersecretary, Paul Volcker, known as the Nixon Administration's top money expert, represented the United States at a conference in Brussels. Volcker faced demands by Common Market countries that the United States: resume support of the dollar by intervention in exchange markets, limit the outflow of dollars and pursue tight money policies domestically (19:15). The demand for tight money is simply another way of stating that the United States would be expected to reduce the rate of domestic monetary expansion in exchange for further foreign support of the dollar.

Details of the agreements reached in the March meetings were not released to the press. It is therefore difficult to determine how successful foreign central banks were in influencing domestic monetary expansion, other than by inference. Figure 2 on page 142 indicates that short term interest rates were increased sharply during the second quarter of 1973. The significance of domestic interest rates for foreign currency traders is revealed in a United Press International dispatch issued on March 22, 1973, shortly after currency markets reopened:

BRUSSELS (UPI) --The American dollar picked up strength on European currency exchanges yesterday and some money experts said it may be "finding its right position."...Financial experts in Paris said they expected the foreign exchange market to remain listless while speculators await news from the United States of a raise in bank rates or some other measure designed to stem the outflow of dollars.

The result of the Brussels conference was not so much the creation of a new monetary system as formal recognition of failure of the existing system. The dollar was to be allowed to float--as it had been since closure of the official exchange markets--and foreign central banks and the Federal Reserve would intervene in the future on a discretionary basis.

While the floating of currencies was looked upon favorably by United States Treasury officials, Ludwig Erhard, former West German economics minister and chancellor, said that the float of European currencies "may grant the participating countries a certain breathing pause, but will probably not be sufficient or even usable as a final solution to regain a functioning international monetary system" (56:10). Erhard further opposed relating currencies to drawing rights in the IMF since such a course would accelerate worldwide inflation. He said, "If it is justified to criticize the multiplication of the surfeit of vagabond dollars, then perhaps even larger amounts of money created via the (International) Monetary Fund would contribute even less toward stabilizing the international monetary system" (56:10).

In May, 1973, the dollar strengthened when the United States reported a balance of trade surplus for April. The dollar had by this time depreciated to a point at which American prices appeared attractive to foreign buyers. Dollars were returning to America,

not to claim gold, for this option was no longer available, but to claim American goods, land, and companies.

This favorable trade balance strengthened the dollar internationally but implications for the domestic price structure were not so favorable.

Rapidly Increasing Prices. The preceding section described the operation of an international political factor upon domestic monetary expansion by the Federal Reserve. The threat by foreign central banks to refuse further support for the dollar could have been adequate to cause a slowing of monetary expansion in America, but may not have been. It was obvious that with foreign central banks holding reserves of \$60 billion by mid-1973, that several countries (especially West Germany) would suffer immense losses if the dollar were permitted to fall precipitously. Thus through the remainder of 1973 up to the time of writing of this thesis, the stronger currency countries (principally West Germany, Holland, Switzerland and Japan) continued to intervene in support of the dollar. The resultant monetary situation has been described as a "dirty float," meaning that currency exchange rates have been in part determined by market forces and in part by central bank support operations.

The international exchange value of the dollar was not the only concern of United States monetary authorities in 1973. In the second quarter of that year an American

consumer might aptly have noted, in the words of Diocletian, that "in the sale of the wares which are exchanged in the market an exorbitant tendency in prices has spread" (page 25). In order to establish popular recognition of the problem and the form of suggested curative measures, it is instructive to review an Associated Press news release dated April 21, 1973:

WASHINGTON (AP) -- Consumer prices in March increased at the highest rate in 22 years, driven up by a record 3.2 percent jump in grocery prices, the government said yesterday. President Nixon's economic advisers, although dismayed by the "unwelcome advance in prices overall," said the Labor Dept.'s report contained "the first encouraging signs" to indicate price relief in the coming months... Prices for all commodities rose 1.3 percent, biggest gain since 1956. With food left out, the jump in commodities prices was 0.5 percent....AFL-CIO President George Meany said the report, reflecting the first three months under the Administration's voluntary Phase 3 wage-price controls, is proof positive of the complete failure of Mr. Nixon's economic policies. "These latest record-breaking figures mean that the American consumer, housewife and workers are going to pay, pay and keep on paying for these failures," said Meany, who again warned unions will ignore the Administration's 5.5 percent wage increase guidelines at the bargaining table this year....Sen. Hubert H. Humphrey, D-Minn., called Phase 3 controls "a license to increase prices."

As the news release indicates, the United States was at that time in Phase Three of a series of wage and price controls first implemented in 1971 in conjunction with the suspension of dollar convertibility. During the 1968 presidential campaign President Nixon had stated:

The imposition of price and wage controls during peacetime is an abdication of fiscal responsibility. Such controls treat symptoms and not causes. Experience has indicated that they do not work, can never be administered equitably

and are not compatible with a free economy.

By 1972, however, President Nixon was moved to observe that he had become a "Keynesian." The "New Economic Policy," as Phases One through Four came to be known, was certainly indicative of some kind of metamorphosis.

The views of Mr. Meany and Senator Humphrey, as expressed in the news release, were representative of widespread sentiment. In nationally televised broadcasts, the views of the farmer, trucker, butcher, corporate official and housewife were aired. The responsibility for increasing food prices was alternately shifted from farmers to retailers to labor unions and finally to ravenous consumers. Absent from most press releases and public discussions was any suggestion that the monetary expansion of 1972, the international dollar crisis and soaring consumer prices might be in some way related.

A common question for debate in 1973 became: how extensive and restrictive should wage and price controls be? Some consumers were unwilling to await government action on price controls. These individuals began to boycott certain retail establishments and products. Particularly militant were the meat-price protestors who could be observed in front of supermarkets bearing signs urging other consumers to refrain from meat consumption.

In a televised statement to the Nation on June 13, 1973, President Nixon responded to widespread expression of consumer displeasure by revealing an intermediate phase of the

New Economic Policy. Noting that voluntary restraint had failed, the President ordered an immediate sixty-day limitation on wages and prices. One provision of this order mandated Internal Revenue Service monitoring of prices with "roll-backs" to occur where price increases could not be justified. The President also requested authority from Congress to restrict export of foodstuffs to protect the American consumer.

The request for export controls was a particularly interesting development. For years many American economists and government officials had been insisting that the value of the dollar derived not from its gold backing, but from the agricultural and industrial capacity of the United States economy. The distinction was never made that the paper dollars were issued by the Government whereas the capital and consumer goods were largely owned by citizens. When the dollar claims were presented by foreigners, American citizens became increasingly reluctant to back Government dollars with privately owned goods. Of course this was not the way the situation was commonly described. The orthodox view was: American consumers ought to have access to domestic goods at reasonable prices before allowing export to occur.

Figure 7 depicts consumer and wholesale price index performance from 1968 through the first quarter of 1976. As can be seen wholesale commodity prices began to increase sharply in the last quarter of 1972. By mid-1973, a sharp

increase in consumer prices occurred, shortly after the appearance of a balance of trade surplus in April.

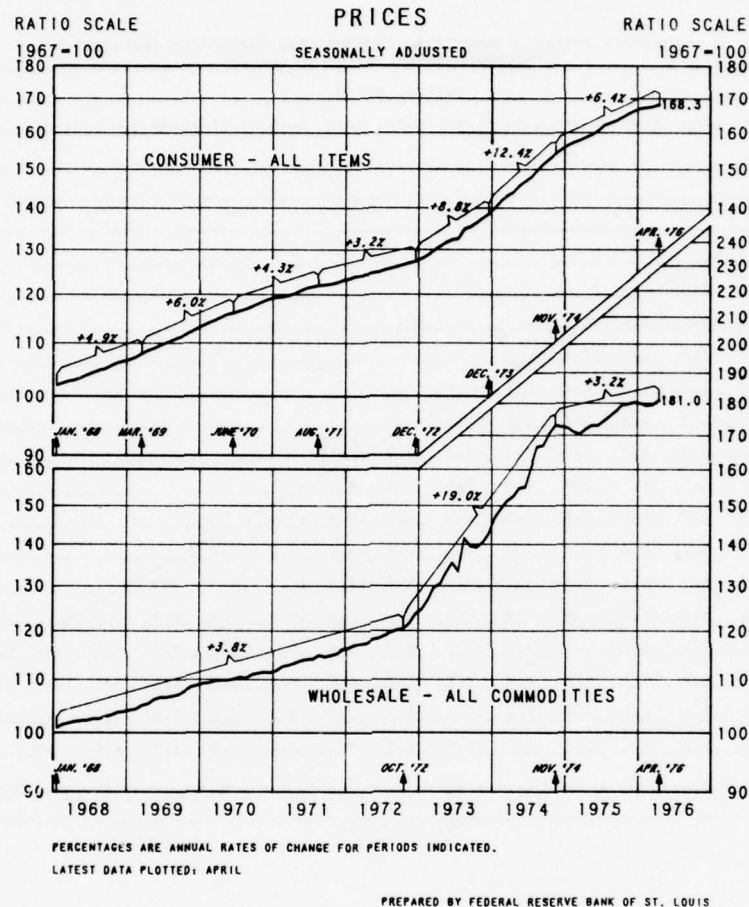


Fig. 7. Consumer and Wholesale Prices

There was ample evidence in the popular press during 1973 and early 1974 that the consumer class had become dissatisfied by the obvious increase in prices and was actively voicing its disapproval. It appeared that the second of the two political constraints upon expansion (page 148) had finally begun to operate. But what of the ultimate constraint, the flight into goods? As the next section will

show, there is evidence that this constraint also came into play.

Symptoms of a Flight Into Goods. On August 2, 1974, the Los Angeles Times-Washington Post Service released the following press dispatch:

London--The rush for gold due to inflation ...led to a 508-ton increase last year in gold held by speculators and hoarders, the Consolidated Goldfields Co. reports. This increase represented about half the annual output of non-communist mines...The doubling in the price of gold last year occurred even as 12 per cent more gold was made available to the free market...

The French were the chief cause of the new gold rush followed by the Italians, the report said...Americans acquired gold through "offshore funds." Outside Europe, Japanese were the main hoarders in 1973 and probably amassed some 40 tons. Canadians bought 10 tons, their biggest quantity for several years.

Americans were not legally able to own gold at the time the preceding dispatch was written. They were, however, able to own certain gold coins that appeared on a special Treasury Department list. At the beginning of 1971, there were no advertisements for these particular coins in the Wall Street Journal. By the end of 1974, five such advertisements were appearing consistently.

Coin dealers throughout the country suddenly found it very difficult to keep gold and silver coins in stock. Thousand-dollar face-value bags of pre-1965 United States silver coins began to trade actively on the newly formed Pacific Coast Coin Exchange.

This movement into precious metal coins is one of the persistent symptoms of rapid currency depreciation that has

been identified in inflations of the past. But it was not just coins that suddenly came under heavy demand, prices of nearly all commodities rose sharply. By November of 1974, the Dow Jones Index of Spot commodities was 311 per cent above its level of three years earlier. Over a period of only three years percentage increases in price were: 277 for scrap steel, 287 for oil, 396 for sugar, and 215 for wheat.

One cannot really say whether these increases were the result of some sudden inexplicable increase in world demand or a rush from cash holdings into real goods (increased velocity of money). On the basis of a study of past experiences with fiat money, however, one might be tempted to observe that in 1973-4 people behaved in a manner quite characteristic of the classic flight into goods.

It is seen that possibly all three of the political constraints upon monetary expansion became operative recently. Whether these constraints will serve to thwart over-expansion in the future remains to be seen. Figure 1 (page 141) indicates that the Federal Reserve has been gradually reducing the rate of expansion since 1973. As the reader will see in the chapters which follow, the Federal Reserve faces a very difficult task in attempting to control the supply of fiat money.

VIII. Non-interventionist Models of Inflation

The term "non-interventionist" is appropriate as a general classification of the two economic schools of thought presented in this chapter. The writings of both the classical and Austrian economists reflect (usually explicitly) the existence of an underlying laissez-faire attitude toward the state. This does not mean that these economists were unrealistic in recognizing the existence of state intervention in economies. Considerable portions of the treatises cited in this chapter are devoted to dealing with the methods and effects of state intervention.

Rather the non-interventionists have advocated that the state restrict its activities to excluding coercion and fraud from the market. Thus Adam Smith often used the term "perfect liberty" in his writings. This did not mean perfect competition; it meant freedom of the individual to pursue his own interests rather than the interests of the King or Parliament.

This kind of thinking was a radical departure from the mercantilist doctrines of the earlier theoreticians, most of whom advocated protective tariffs, usury laws and monopolistic charters and licensing. The modern Austrians have maintained this ideal of individual freedom of action and believe that recent inflation is due in large part to the reinstatement of statist doctrines.

The Classical Model

For the purpose of developing a classical model of inflation, this section is principally based upon the works of the English classical economists: David Hume, Adam Smith, David Ricardo and John Stuart Mill. These writers are widely accepted among contemporary economists as representative of the classical school.

Mill's work, The Principles of Political Economy (50), provides the richest and most clearly written source of early theory on inflation. Mill was a pioneer in the philosophy of the scientific method and therefore subjected the works of his predecessors, from Hume to Ricardo, to careful study and objective analysis. Most of the material presented in this section should be considered as derived from the works of Mill unless specifically referenced to one of the earlier classical writers.

In a previous discussion (page 8), it was noted that the classical economists did not commonly employ the term "inflation." Therefore one must examine their writings for such alternate or related terminology as: "the purchasing power of money (PPM)" or "a general rise or fall in prices." Mill identified the classical equivalent of the PPM as follows (50:643):

...("the value of money") which properly expresses the purchasing power of the circulating medium.

One does find that the "value of money" is quite commonly discussed in the works of Mill's predecessors. Mill thus clarifies the terminology of the earlier economists and

provides the key for a better understanding of their works. Since the term "value" appears extensively in the early literature, one needs to understand in what sense(s) the term was employed. According to Mill (50:478):

- I. Value is a relative term. The value of a thing means the quantity of some other thing, or of things in general, which it exchanges for. The values of all things can never, therefore, rise or fall simultaneously. There is no such thing as a general rise or a general fall of values. Every rise of value supposes a fall, and every fall a rise.
- II. The temporary or market value of a thing depends on the demand and supply; rising as the demand rises, and falling as the supply rises.

The value of a thing is not to be confused with the price. The term "price" is used to express the exchange value of a thing in terms of money. The amount of money for which any item exchanges is said to be its price; whereas the value, or exchange value, of that item is its general power of purchasing in terms of other commodities in the market (50:437).

Inflation is seen in the classical terminology to be a decline in the value of money. In terms of price, it corresponds to a rise in the general level of prices. In what manner, then, are a rise in prices and the concept of value related? According to Mill (50:439):

There is such a thing as a general rise of prices. All commodities may rise in their money price. But there cannot be a general rise of values. It is a contradiction in terms. A can only rise in value by exchanging for a greater quantity of B and C; in which case these must exchange for a smaller quantity of A. All things cannot rise relatively to one another. If one-half of the commodities in the market

rise in exchange value, the very terms imply a fall of the other half; and reciprocally, the fall implies a rise. Things which are exchanged for one another can no more all fall, or all rise, than a dozen runners can each outrun all the rest... Because when the price of any one commodity rises, the circumstance usually indicates a rise of its value, people have an indistinct feeling when all prices rise, as if all things simultaneously had risen in value, and all the possessors had become enriched. That the money prices of all things should rise or fall, provided they all rise or fall equally, is in itself, and apart from existing contracts, of no consequence. It affects nobody's wages, profits, or rent. Every one gets more money in the one case and less in the other; but of all that is to be bought with money they get neither more nor less than before.

Apparently Mill had noted that a rise in the general level of prices encourages the notion that sellers of goods receive higher values or more real revenue than previously. Other than in its effect on existing contracts, however, Mill contended that a decrease in the PPM brings no benefits to the sellers of commodities or services since their future purchasing power is correspondingly decreased.

It should be borne in mind that when the classical economists spoke of money they meant commodity money, specifically, gold and silver. Since gold and silver had, by market action through the years, become the most widely accepted media of exchange, any other kinds of money or monetary instruments were spoken of in distinctive terms such as "money substitutes" or "paper money." Adam Smith expressed his view of money in relation to the price of goods in these words (76:46):

By the money-price of goods, it is to be observed I understand always the quantity

of pure gold or silver for which they are sold, without any regard to the denomination of the coin.

If one remembers the widespread practice of coin debasement characteristic of the early economic history with which the classical economists were familiar, Smith's motive for distinguishing between the quantity of precious metal and the nominal amount contained in a coin (denomination) becomes apparent. The classical economists were careful to speak of money in terms of specific weights of the monetary metals in use, thereby preserving the distinction between nominal price and commodity exchange relationships or money-price.

This brief review of classical terminology enables one to proceed with more assurance of understanding to the question of what factor(s) can bring about a secular increase in the general level of prices. Classical economics suggests that the following four circumstances can singularly or in combination produce such an effect:

1. A decrease in the quantity of goods available for purchase.
2. An increase in the quantity of money.
3. An increase in the quantity of money substitutes beyond a certain critical level.
4. Expansion of credit.

The classical model developmental sections which follow are devoted to examining the conditions and ramifications associated with these four circumstances.

The Purchasing Power of Money. Money acts as an

intermediary in the interchange of commodities. It is a medium of exchange. Money also serves as a common measure for values of different sorts. In no other way than by the use of this kind of measure can a person arrange values on an ascending scale, calculate the total worth of his possessions and remember the cross relations in value of many different things. Money thus serves as a common language for the expression of values (50:483).

Money also provides a mechanism for effecting the coincidence of wants of different individuals thereby facilitating the division of labor or specialization of productive activities. In order to properly fulfill this function, the thing which people select for money must be divisible, durable and generally desired. When these requirements are met, money can serve as a reliable store of value across time and distance (50:484).

At an early period, almost all nations selected certain metals, especially gold and silver, to serve as money. No other substances were seen to unite the necessary qualities to such a large degree with so many subordinate advantages. Of all the commodities gold and silver are among the least influenced by any of the causes which may produce fluctuations in value. They have sustained only one great permanent alteration in value since the beginning of history. This alteration resulted from the 18th century discovery and development of the American mines (50:484-5).

Some temporary variations have occurred in particular nations, principally in time of war when hoards were seized

by military conquest. But on the whole, no other commodities are so stable in value. The durability of these two monetary metals is such that the total quantity in existence is always great in proportion to annual production. Consequently, a very long time is required to substantially increase or diminish the quantity in existence (50:485-6).

In classical theory, the market exchange value of commodities is determined, in accordance with the "Laws of Value" (50:478-80). Mill relates the nature and value of money in the following way (50:488-9):

Money is a commodity and its value is determined like that of other commodities, temporarily by demand and supply, permanently and on the average by the cost of production... the value of money is what money will exchange for; the purchasing power of money. If prices are low, money will buy much of other things and is of high value; if prices are high, it will buy little of other things, and is of low value. The value of money is inversely as general prices: falling as they rise, and rising as they fall.

Mill's reference to the "cost of production" as the long-run determinant of the value of money is based upon the idea that as long as the mining of the monetary metals is profitable, there will be an incentive to increase production. For example, if 110 ounces of gold could be mined in one year at a total cost in wages, equipment and rent of 100 ounces, the exchange value or total revenue would exceed the cost of production by ten ounces or ten per cent. This ten-ounce profit would serve as an incentive to increase output and thereby increase the total stock

of gold. A decline in the PPM, other factors constant, would be experienced by the gold mining industry as an increase in the cost of production and would tend to discourage further production. Therefore, there is a long-term balancing effect between the PPM and the quantity of money with the PPM tending always toward the cost of production in the absence of state intervention in the voluntary exchange (free) market.

The PPM is subject, of course, to short term fluctuations arising from the supply-demand situation in the same manner as any other commodity. The difference between monetary and ordinary commodities is that the former do not undergo as large fluctuations because of the relatively large existing stock. Additionally, consumption or direct use of the monetary commodities amounts to only a small proportion of the quantity in existence at any time.

While it is common to speak of buying ordinary commodities, through an accident of language, the terminology "to buy money" is not commonly used. When one sells goods, however, clearly the monetary commodity is purchased. The money with which people offer to buy goods is money offered for sale. Therefore, the supply of money is that quantity which people desire to spend. This supply consists of all the money which people possess except that which they hoard or desire to hold in reserve for future contingencies. In short, the supply of money is all of the money in circulation at a given time, while the demand for money consists of all of the goods offered for sale. In the market, money

and goods are reciprocally supply and demand of one another (50:490-91).

Suppose that a foreign buyer enters the domestic market for goods bringing an additional quantity of gold and silver into the market. If the new buyer spends his money on consumer goods, then all else constant, the demand for those goods is increased and the price rises accordingly. Should the foreigner elect to establish a factory, then the prices of labor, capital goods and raw materials would increase reflecting the new addition to demand. Assuming that consumption patterns remain the same, an increased demand will eventually spread to all things in the market and a general rise in prices will occur (50:491-92).

If to each ounce of money possessed by persons dealing in the market, an additional ounce were added, thereby doubling the supply of money in circulation, then the general level of prices would be doubled. The same effect on prices would be produced if the quantity of each good for sale were reduced by one-half. Other factors remaining constant, the PPM varies inversely as the quantity of money in circulation and directly as the quantity of goods available for sale. Money in this sense is unique among the commodities. Since it is desired as the means of universal purchase, the only limit to the demand for money is set by the fact that sellers of goods have nothing more to offer. The entire quantity of goods brought to market will be sold at prices determined by the entire amount of money which is presented for exchange (50:492-93).

There emerges from the foregoing considerations a simple basic model which is the cornerstone of classical monetary theory. In the words of Mill (50:495):

"That an increase of the quantity of money raises prices, and a diminution lowers them, is the most elementary proposition in the theory of currency, and without it we should have no key to any of the others."

The preceding statement indicates that Mill did not erroneously conclude that such a simple proposition served to adequately explain or determine the general price level during any particular period. For instance, it is quite possible for individuals to accumulate hoards of money over a period of time. Should the hoarders, for some reason, elect to spend their money or to hold newly acquired money for a shorter period of time, the quantity of money bid for available goods would increase. This condition may be described as an increased "rapidity of circulation" (velocity). Mill differentiated between this short term effect on prices and the long term effect of quantity as follows (50:526):

"If all purchases were made with ready money, the payment of increased prices for some articles would draw an unusual proportion of the money of the community into the markets for those articles, and must therefore draw it away from some other class of commodities, and thus lower their prices. The vacuum might, it is true, be partly filled up by increased rapidity of circulation; and in this manner the money of the community is virtually increased in a time of speculative activity, because people keep little of it by them, but hasten to lay it out in some tempting adventure as soon as possible after they receive it. This resource, however, is limited: on the whole, people cannot, while the quantity of money remains the same, lay out

much more of it in some things, without laying out less in others."

The rapidity of circulation can influence the general price level but the effect cannot be large for a sustained period. Disharding must eventually exhaust the hoards at which point the quantity of money offered for sale in the market ceases to increase and prices level off or fall.

Apart from the discovery of large deposits of low cost-of-production gold and silver, there is no mechanism in the classical model as developed thus far which could reasonably account for a widespread secular decline in the PPM. However data-base material suggests that the PPM may be affected by the issuance of what the classical economists termed "money substitutes." These monetary instruments are, therefore, an appropriate subject for further examination within the classical framework. Of these substitutes, the first that will be considered is paper money.

Paper Money and Purchasing Power. Assuming the absence of state attempts to regulate value and no charge for coining money into standard units, the purchasing power of money will conform to the value of the monetary metal of which the coin is made. A certain weight of coin will exchange for precisely the same weight in gold or silver ingot from which the coin is made (50:500). Suppose the foregoing conditions exist and the government suddenly issues a paper currency equal in total denomination to one-half the amount of the coinage in circulation. This currency is then used by the government to pay wages and purchase goods. Since

the circulating currency is thereby increased by one-half, the prices of all things will rise including articles of gold and silver. The monetary metals will temporarily be worth more for manufacturing or export than in coin form and one-half of the coin will be withdrawn from circulation for melting or export. This process is complete when the nominal value of the circulation and the prices of goods have returned to their former level. Nothing will have changed except that a paper currency has been substituted for half of the previously circulating coinage. If further emissions of paper currency are made, the point will eventually be reached when all of the coins, except those subsidiary coins needed for small change, will have been replaced by paper (50:543).

Up to this point, the effect of introducing paper currency is essentially the same whether that currency is convertible into coin or not. If issues of paper are carried beyond the point at which all coinage has been driven from circulation, however, the result is dependent upon whether the currency is convertible. A convertible currency would be presented to the issuer, whether the state or commercial banks, for payment in coin or bullion. As long as the issuer met all claims, or was generally believed capable of so doing, there would be no reason for the purchasing power of the paper to fall below that of the precious metals it represents (50:544). A paper note in the denomination of one dollar, for example, would exchange

for a coin of gold or silver of the same denomination. Coins and notes would be used equivalently to purchase goods in the free market.

If the paper currency were inconvertible, however, the situation would be quite different. Unless restricted by law, the issuers of an inconvertible currency may add to the quantity without limit, lowering its value and increasing prices accordingly. The currency may ultimately be depreciated without limit (50:544).

The potential for abuse is very great when a paper currency is, or has become, inconvertible. The issuers may have an interest in causing the fortunes of others to fluctuate (for example in the commodities market) or may be induced by the profit from currency issue to expand the quantity greatly. Those in debt, including governments, have a direct interest in depreciating the currency in which their debts are denominated (50:544).

Ricardo warned of the dangers inherent in the capacity to issue paper money as follows (65:241):

Experience, however, shows that neither a state nor a bank ever have had the unrestricted power of issuing paper money without abusing that power; in all states, therefore, the issue of paper money ought to be under some check and control; and none seems so proper for that purpose as that of subjecting the issuers of paper money to the obligation of paying their notes either in gold coin or bullion.

This concern with maintaining convertibility is manifest throughout the writings of the classical economists that were listed on page 163 and appears to be the critical

element in developing a classical model of inflation.

When substitutes are used for monetary metals, it is possible to reduce the value of these substitutes with respect to the metals only by reducing the metallic content of a nominally standard money unit. Since paper money was not widely used prior to the seventeenth century, the writings of the earlier economists stressed debasement of coins as the mechanism for depreciating the currency. Thus in 1776 Smith expressed the same concerns about an artificially (by state intervention) induced fall in the PPM that Mill expressed three generations later. Instead of paper money, however, Smith stressed the substitution of debased coins (76:27-28):

"For in every country of the world, I believe the avarice and injustice of princes and sovereign states, abusing the confidence of their subjects, have by degrees diminished the real quality of metal which had been originally contained in their coins...By means of those operations the princes and sovereign states which performed them were enabled, in appearance, to pay their debts and to fulfil their engagements with a smaller quantity of silver than would otherwise have been requisite. It was indeed in appearance only; for their creditors were really defrauded of a part of what was due to them. All other debtors in the state were allowed the same privilege, and might pay with the same nominal sum of the new and debased coin whatever they had borrowed in the old. Such operations, therefore, have always proved favourable to the debtor, and ruinous to the creditor, and have sometimes produced a greater and more universal revolution in the fortunes of private persons, than could have been occasioned by a very great public calamity..."

While the substitution of debased for standard coinage is a variation in technique, the final result is identical with

the overissue of a paper currency. In both cases the nominal amount of monetary metal expressed in terms of substitutes, exceeds the quantity actually circulating. Mill observed that debasement had, by 1850, largely ceased to be practiced "except occasionally through the medium of paper money, in which case the character of the transaction, from the greater obscurity of the subject, is a little less barefaced (50:487).

Mill expressed additional views with respect to an inconvertible currency that appear particularly relevant to the modern world in the light of information presented in the latter portion of the data base section. These views are normative, judgmental and empirical respectively in answer to the following three questions:

1. How ought a currency to be secured against depreciation?
2. How has public attention been diverted from the practice of debasement?
3. What serves as an indicator of currency debasement and depreciation?

In order to avoid intermediary distortion of his views, Mill's answers to these questions are preserved in context as follows (50:545):

In order that the value of the currency may be secure from being altered by design, and may be as little as possible liable to fluctuation from accident...the precious metals have been made in all civilized countries the standard of value for the circulating medium; and no paper currency ought to exist of which the value cannot be made to conform to theirs. Nor has this fundamental maxim ever been entirely lost sight of, even by the governments which have most

abused the power of creating inconvertible paper. If they have not...professed an intention of paying in specie at some indefinite future time, they have at least, by giving to their paper issues the names of their coins, made a virtual, though generally a false profession of intending to keep them at a value corresponding to that of the coins... But there is a clear and unequivocal indication by which to judge whether the currency is depreciated, and to what extent. That indication is, the price of the precious metals. When holders of paper cannot demand coin to be converted into bullion, and when there is none left in circulation, bullion rises and falls in price like other things; and if it is above the mint price...the value of the currency has just sunk that much below what the value of a metallic currency would be.

(Underlining is by the writer)

Mill answered the questions immediately preceding this quote in very positive terms. With his views freshly in mind, it is appropriate at this point to attempt to relate some of the classical ideas to the contemporary monetary situation.

First of all it should be noted that, as of this writing, paper currencies of the world are not made to conform to the purchasing power of the precious metals. The international monetary system described in the data base is such that the major currencies fluctuate daily with respect to each other (Chapter VII) and relative to any specified quantity of gold or silver. The prescriptions for regulating the purchasing power of the currency made by both Mill and Ricardo (page 174) have not been followed.

If failure to follow these prescriptions has resulted in "depreciation" of currency, the extent of depreciation

should be indicated, according to Mill, by the current price of the precious metals and the fact that "bullion rises and falls in price like other things." If one takes the median of the 1974-6 fluctuations in the price of gold to be approximately \$140 per ounce, then the dollar has depreciated, according to Mill's criterion, to the ratio of \$20 to \$140 or to 0.14 of its value prior to 1933. In classical terms, the purchasing power of America's monetary metal is seven times as great as that of the paper currency, a subject for further discussion in Chapter X.

It may appear that, with the introduction of an inconvertible currency subject to overissue by the state, the classical model of inflation is complete. The next section will show, however, that classical economists did not believe this relatively straightforward model to be adequate for explaining certain violent and fairly lengthy trends in the general price level. The institution of credit occurred at an early point in economic history. The classical economists were not remiss in considering the importance of this institution in relation to prices.

The Effect of Credit on Prices. As previously discussed, Mill held that in the long run, either in the case of commodity money or of a properly regulated (convertible) paper currency, the PPM is equal to the cost of producing the precious metals. But in the immediate period, other factors constant, an increase in the quantity of money in

circulation raises prices and a decrease lowers them. If more money is placed in circulation than that quantity for which the PPM conforms to the cost of production, prices will be maintained above the "natural rate" (50:523).

The quantity of money offered for commodities (demand) is not the same as the quantity possessed. Sometimes less is offered and sometimes very much more. When people desire to hold money reserves for contingencies or in the expectation of lower prices, the quantity in circulation is less than the total quantity owned. A more common occurrence is the purchase of goods with money not in the purchaser's possession. For example, when an article is purchased by check, the money is neither in the purchaser's nor, generally, the banker's possession. The banker usually has loaned out all of the money entrusted to his keeping except that portion which constitutes his reserve. But the original depositors, though not making purchases with money in their possession, are still making purchases with money to which they "have a right" (own) (50:524-25).

It is also possible for a person to purchase goods with money which is only expected or to which there is a pretense of expectation. That is, one may make purchases by means of promises to pay, whether in the form of acceptances, personal notes or simple credit in a merchant's books. Thus the amount of purchasing power available to an individual is composed of all of the money he owns including demand deposits, plus all of the credit he can obtain. The

portion of this total purchasing power which a person decides to use is the measure of his effect on prices. A total demand may be created by the individual to the full amount of his money and credit together, with prices increasing in proportion to both (50:525).

The willingness of people to increase their demand for commodities is in part a function of their expectations about future prices. Should a general impression develop that prices are about to rise in a particular good due to some cause, people rush to purchase that good and dealers hasten to enlarge their inventories in order to profit from the expected rise in price. This anticipatory activity tends, in itself, to bring about the expected price rise. If the rise attracts trend-following speculators, these too may add their purchases in an attempt to profit from continuation of the trend. In this manner the price of the good may be driven well above that justified by the original cause (50:525-26).

If a rise in the price of one or more commodities were limited to the effect of the existing quantity of money in a society, such speculative activity could not proceed very far. People could not spend money on one group of commodities without spending less on others once the effect of possible dishoarding had been exhausted. What cannot occur through the mechanism of money in hand, however, can be accomplished by the extension of credit (50:526).

When people go into the market to purchase with money

they hope subsequently to receive, they are drawing upon a practically unlimited fund. Speculation supported by credit may be going on in any number of commodities without reduction in the demand for others. Speculation might in fact be occurring in all commodities simultaneously. One can imagine the occurrence of a speculative epidemic in which all dealers, instead of ordering only the usual quantities from the producers of their goods, commence to buy up as much as their capital and credit together will permit. In this case all prices would rise enormously, even if there were no increase of money or paper substitutes, but a mere extension of purchases on book credits. After a time those who had bought would wish to sell and prices would begin to collapse.

The classical economists termed the period of rapidly falling prices which follows a period of excessive credit expansion a "commercial crisis" or a "commercial revulsion." Mill described the process and identified the cause as follows (50:528):

"...when prices were rising, and everybody apparently making a fortune, it was easy to obtain almost any amount of credit, so now, when everybody seems to be losing, and many fail entirely, it is with difficulty that firms of known solidity can obtain even the credit to which they are accustomed..because all dealers have engagements to fulfil, and nobody feeling sure that the portion of his means which he has entrusted to others will be available in time, no one likes to part with ready money, or to postpone his claim to it. To these rational considerations there is superadded, in extreme cases, a panic as unreasoning as the previous over-confidence;

money is borrowed for short periods at almost any rate of interest, and sales of goods for immediate payment are made at almost any sacrifice. Thus general prices, during a commercial revulsion, fall as much below the usual level as during the previous period of speculation they have risen above it: the fall, as well as the rise, originating not in anything affecting money, but in the state of credit..."

The process described by Mill in 1848 seems to correspond very closely to the "boom and recession" phenomenon or "business cycle" of more recent treatises.

With the introduction of the credit instrument and a final mechanism (credit expansion) by which the general price level may be increased, the identification of basic elements in the classical model of inflation is complete. There remains the task of attempting to integrate these elements in terms of the contemporary economic setting.

The Integrated Model. In the classical view, the quantity of money present in a particular economy is of no consequence. One amount is as desirable as another. Once the quantity of money and the various price relationships have become established, however, changes in the quantity of money with respect to the quantity of goods become significant. If the quantity of money in circulation increases more rapidly than the supply of goods offered for sale, the PPM declines. In the long term, consistent with the balancing effect of the cost of production, the quantity of goods and money ought to increase at approximately the same rate thus maintaining a high degree of stability in the PPM.

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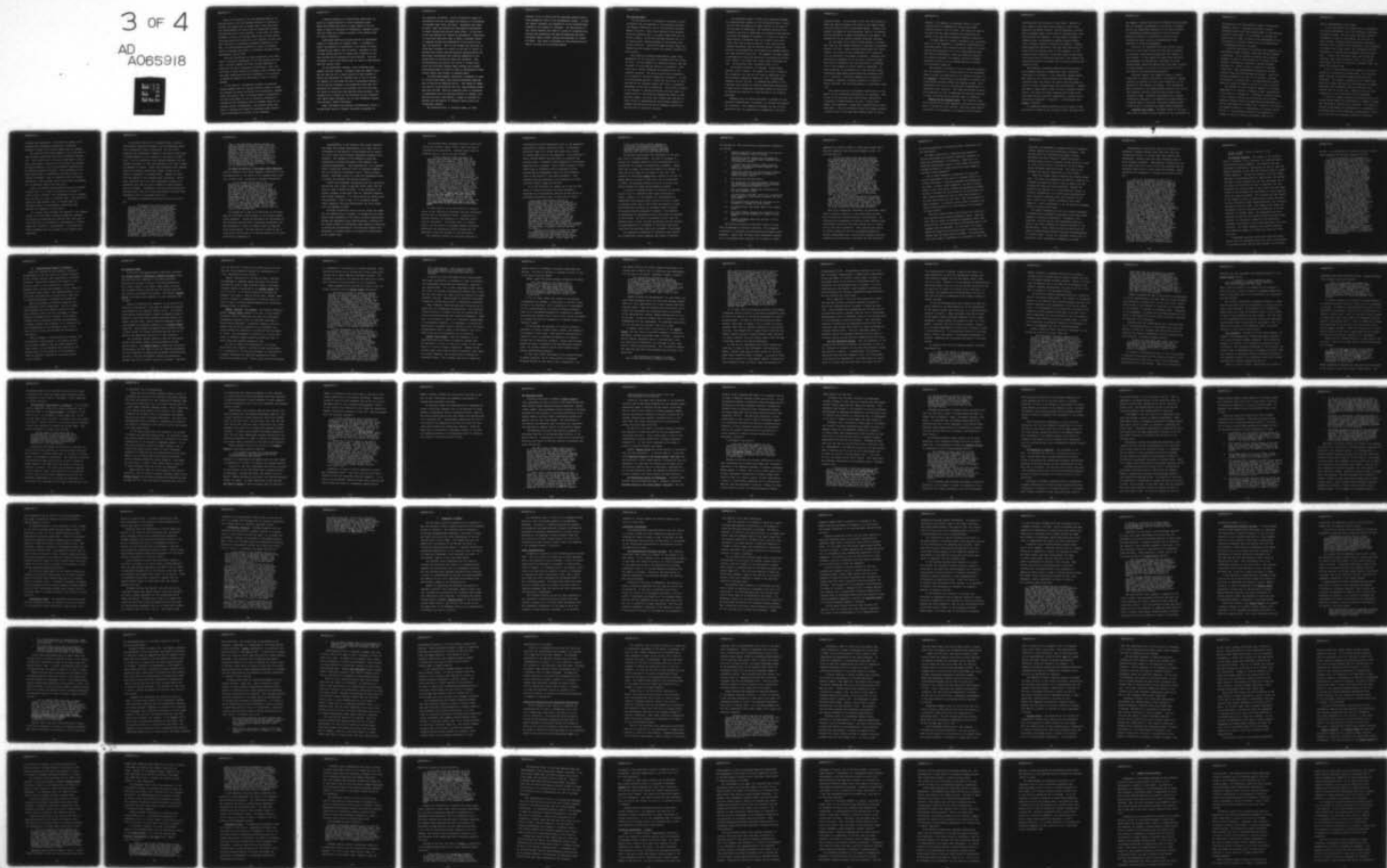
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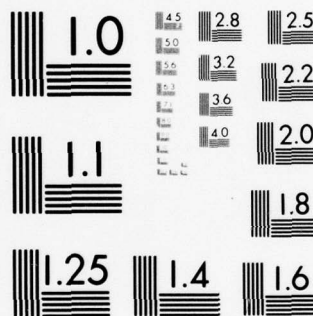
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While the discovery of the rich American deposits of precious metal in the 18th century resulted in a decline of the PPM, the decline was so gradual and of such long duration (approximately 70 years) that no significant economic dislocations seem to have resulted. On the basis of Smith's estimates (76:191), the average annual rate at which prices increased during that period was, at a maximum, two per cent. This resulted in a relatively permanent alteration in the PPM. The ever-increasing quantity of money in existence tended to decrease the effect of subsequent isolated mining developments upon the PPM.

With the introduction of money substitutes, the interplay of classical determinants of the PPM becomes more complex. One must compare the price of goods expressed in money with the price expressed in substitutes. While the two forms of price expression generally yield identical numbers when substitutes are first introduced, it is possible to expand the quantity of substitutes so that a discount appears.

In the case of a convertible currency, discounting usually appears when the issuing authority ceases to redeem the currency in specie or bullion of the prescribed standard weight and purity. When a currency becomes inconvertible, the long term effect of cost of production continues to operate and the purchasing power or exchange value of the monetary metals is maintained. The monetary metals then serve to indicate the extent of purchasing power deterioration ascribable to overissue of the currency.

A secular expansion of inconvertible substitutes results in a secular decline of their purchasing power. Where such substitutes serve as legal tender in the purchase of goods or discharge of obligations, consumers experience the effect as a secular increase in the nominal level of prices (inflation).

Significant short-term factors may act to alternately obscure or exacerbate the secular trend. A decrease in either the rapidity of circulation or the amount of credit outstanding can cause a fall in prices. Increases in both of these factors may act in concert with inflation to produce extreme price increases for short periods. Thus the interplay of short term factors may be viewed as superimposed upon the secular trend.

For any particular consumer, price performance may appear even more complex. Ordinary supply and demand forces may act upon the set of goods favored by that consumer to convey the impression of a general rise or fall of prices. For example, an individual who does a considerable amount of driving and who purchases a new automobile every year will experience an increase in his personal cost of living when the prices of automobiles and gasoline alone increase. This consumer may be alarmed by his perception of the "inflation rate" while other consumers, due to their different consumption patterns, remain indifferent.

Apart from market and monetary considerations, there is an additional factor of semantic convention recognized by

the classical economists. As Mill pointed out (page 177), governments have not encouraged the practice of distinguishing between paper notes and money. Invariably such names as mark, franc, and dollar have been applied equivalently to paper currency and precious metal coins. Yet gold and silver are neutral with respect to nationality. Technically it would have been quite easy to adopt a worldwide system of standard weights and nomenclature at any point in the last few centuries. That no such attempt has been made is prima facie evidence of a desire on the part of states to maintain and control national monetary systems despite the additional calculations and confusion engendered by the preservation of distinctive names and standards. Such differentiation and control has served to further obliterate the difference between paper currency and coinage, accustoming people to think in terms of nationalistic nomenclature rather than weights of monetary metal.

The additional semantic convention of speaking in terms of rising prices rather than falling purchasing power may also be seen as an obscuring factor. This manner of speaking tends to focus attention upon the item purchased rather than upon the PPM. When the classical model is considered in combination with the obscuring factors of semantic conventions and short term effects, a basis is provided for analysis and application of classical theory within the contemporary context.

The classical model of inflation seems, at least

grossly, to be in accord with the data-base material and to have explanatory value in the contemporary context. It does not however represent the culmination of non-interventionist thinking on the subject of inflation. The next section of this thesis presents the ideas of a group of economists who, working from essentially the same philosophical and methodological bases, further refined and developed the classical model. This group of advocates of non-intervention has come to be known as the Austrian School.

The Austrian Model

The Austrian School is generally considered to have originated with the teachings of the Austrian economist, Carl Menger (1840-1921), and to include Wieser and Bohm-Bawerk (5:418-19). More recent writers in the Austrian economics tradition are L. von Mises (1881-1974) and his former students: Nobel-Prize-winning economist Dr. F. A. von Hayek and Dr. Murray Rothbard of the Brooklyn Polytechnic Institute. Selected writings by Mises, Hayek and Rothbard are the primary sources for material presented in this section.

The classical economists appropriately began their examination of the conditions of exchange with the concept of value. But the emphasis in classical economics was upon "classes" of both goods and factors of production. This focus led to certain paradoxes and ambiguities in the classical theories. The value of goods was considered to be a property of the goods themselves (intrinsic). As seen in the preceding section, a search for the source of value resulted in the classical theory that value is ultimately determined by the cost of production. This notion of value is not adequate to explain and relate the more common exchange ratios of such goods as diamonds and bread or steel and rare stamps. The focus upon classes also resulted in difficulties in identifying the relationship between consumption and production as well as marginal productivity and the price of production factors.

The Austrians sought to resolve the classical dilemmas by centering their analysis on the acting individual. Starting with the individual as he makes choices on the basis of his own scale of preferences, the Austrians perceived that productive activity is based upon the producer's expectations of serving the demands of consumers. No amount of labor or other factors of production can, by virtue of cost alone, confer value upon a good or service. Value results from consumer valuations, and the relative prices of goods and services are determined by the intensity of consumer desires for these products (70:11-12). For example, one might expend a vast amount of labor and resources in producing the proverbial "widgeit," but unless one or more other individuals desire that particular item, its market value is nil.

The acting individual, as consumer, chooses among specific units of goods. The larger the number of units in his possession, the less he will value an additional unit. This Austrian finding was termed the "law of diminishing marginal utility" (70:13). It remedied the defects of the classical value theory by correctly identifying valuation as a human function based upon individual scales of values and by relating the quantity of a good desired to the quantity possessed.

Emphasis upon the acting individual is perhaps the most important characteristic of Austrian, in contrast with Keynesian, economics. Such emphasis encourages the use of introspection as well as observation in attempting to arrive at

economic truths. It also seems to have led the Austrians to adopt the implicit premise that there is free market operation even under a strict totalitarian regime. Usually, the greater the degree of totalitarianism, that is, the harsher and more pervasive is state intervention in the market, the greater will be the conflict between state and citizenry.

In this sense the so-called "black market" is nothing more than the free market operating in defiance of government decrees (69 :786). Apart from any justification for intervention, the effect of such interference is to raise the cost of operation of the market in general. Sometimes this escalation is apparent, as in the case of narcotic drugs where state intervention has often resulted in increasing cost to the consumer by several orders of magnitude. In other instances of intervention the costs are more evenly distributed among market participants and therefore difficult to identify. Particular examples are: licensing requirements, subsidies, military operations in behalf of vested interests, and the establishment of "regulated" monopolies.

The precise results of government interventions in the market are not predictable according to the Austrians. This is due to the fact that there are no known quantitative "constants" in human behavior (69:754). People learn, aspire, gain experience, change their expectations and sometimes panic. Thus an intervention which has always produced a certain result in the past may suddenly cease to work as

expected. For example, a government effort to reduce interest rates by expanding the money supply might actually produce a rise in rates. This may occur despite the fact that the same procedure was successfully employed in the past under seemingly identical conditions.

If human behavior, whether considered on an individual basis or in the aggregate, is inherently unpredictable as Austrians assert, then statistics may be useful for recording and data gathering, but not for demonstrating cause and effect relationships. Thus the positivist approach to economics employed, for example, by Milton Friedman (monetarist school) is not epistemologically acceptable in the Austrian tradition.

With respect to inflation, there is Austrian unanimity that the phenomenon of a secular decline in the purchasing power of money, as experienced in the twentieth century, is due entirely to intervention by governments in domestic and international monetary markets and banking systems. This intervention has led to a sustained and internationally coordinated credit expansion. The means and methods by which this expansion has been accomplished are principal subjects of study in arriving at an Austrian model of inflation.

Banking and the Business Cycle. The classical economists observed that credit expansion could raise the general level of prices for brief periods. They also noted that at some point in the progress of an expansion people became

concerned about the solvency of their banks. Bankers, in turn, began to worry about the soundness of their loans. Depositor and banker concerns, usually appearing in concert with an external drain on the stock of monetary metal, eventually halted the expansion. In many cases a shortage of lendable funds, as indicated by rapidly rising interest rates, created a difficult situation for debtors. Anxiety among depositors resulted in bank runs that often could not be met with the existing level of bank reserves. In the ensuing credit contraction, loans were called in and inventories were sold at practically any price. The scramble for liquidity resulted in a general fall in prices below the pre-expansion level.

The classical economists perceived that the source of the alternate periods of expansionary boom, followed by contraction or recession, is the commercial banking system. When banks are in a sound condition and businessmen are optimistic about the future, the latter group are eager to borrow in order to expand their plant and inventory. Bankers are eager to make loans in order to enjoy increased interest income. The period of credit expansion and rising prices which results from optimistic expectations, however, has an inevitable consequence: recession. An inflationary boom causes a recession.

If commercial banking practices are the source of what has come to be known as the "business cycle," why have those

who engage in unsound practices not suffered the same market fate as imprudent businessmen? No one expects a businessman who has experienced bankruptcy to be very successful in attracting investment capital for future ventures. Capital is likely to be diverted to those who have consistently shown a profit and demonstrated their expertise in financial management.

Similarly, one experience with bank failure should suffice to alert bank clients that they must be careful in selecting a bank and monitoring the cash reserves of their banker. If the competitive market were effective, the advantage of establishing a reputation for sound banking among clients and bank-rating firms ought to result in sound banking, or at least in the survival of only a few banks of well-established reputation.

Austrians explain this apparent failure of market competition to correct deficiencies in commercial banking practice by pointing out that a free market has not been permitted in the practice of banking. This explanation applies equally to the banking system extant at the time of the classical economists and that which exists internationally today. Invariably governments have created--sometimes by regulation, but generally by establishment of a central bank--a controlled, cartelized banking system within which to coordinate and defend credit expansion.

Austrian Cycle Theory. The Mises theory of the business cycle is simply economic analysis of the consequences of

intervention in the free market by means of bank credit expansion (67:12). Although the period of rapidly increasing prices (the inflationary phase) is the principal concern of this paper, it is necessary to consider the entire cycle in order to arrive at an understanding of the fluctuations in inflation rates which are characteristic of contemporary national economies.

The first requirement for business cycle analysis is to distinguish between business cycles and ordinary business fluctuations. Since business conditions are constantly changing in terms of the availability of capital and resources, technological innovation, consumer spending patterns etc., there is never a condition of business "stability." Some entrepreneurs successfully forecast consumer needs and their enterprises prosper. Others err and may ultimately be forced out of business. Specific fluctuations in business are to be expected and no special theory of cycles is needed to account for them (67:12-13).

The problem for cycle theory to explain is the sudden appearance of a "cluster of business errors" characteristic of the onset of a depression. According to Austrian theory, no such cluster of errors can be accounted for by market operation because trained and experienced entrepreneurs will not all make errors at the same time. After all, the ability to forecast correctly is a prerequisite of business success (67:16-7). The Austrians attribute this appearance of a cluster of errors to previous investments made on the

basis of manipulated interest rates.

On the free market, the interest rate is determined by the time preferences of all the individuals composing the market economy. The more people desire to spend on consumption of goods in the present, the less will be their savings. Economic growth comes about principally through a fall in people's time preference, their preference for present over future goods. The businessman receives information on consumer time preference via the interest rate. A higher time preference means less saving and, therefore, less funds available to loan. For a given loan demand, the less the quantity of loanable funds, the higher the interest rate.

A fall in time preference thus appears to the entrepreneur as a reduction in interest rate. This reduction makes long-term investments appear potentially more profitable. For example, construction of a cement plant which would begin production in five years may not appear profitable when investment funds are available at an interest rate of six per cent. However at four per cent construction of the plant might well be undertaken.

In brief, a lowered interest rate brought about by increased saving signals the entrepreneur to engage in longer term (principally capital goods) projects. An increase in interest rates signals the entrepreneur to concentrate on the satisfaction of more immediate consumer wants. This is not to say that an entrepreneur measures or perceives

consumer time preferences. The process is simply one of comparing the estimated profitability of different ventures in terms of the current market rate of interest.

Low interest rates shift emphasis to the production of capital goods, goods more removed from immediate consumption. This implies that if interest rates were to fall to zero, any project, however far in the future the ultimate productive benefits, could be equivalently compared with an existing productive facility. Thus production of consumer goods might be indefinitely postponed in favor of capital investment. This is consistent with the further implication, that consumers would as soon delay consumption for an indefinite period into the future.

Given the Austrian time-preference view of the market interest rate, it is easy to discern how a cluster of errors might be induced. The entrepreneur is not concerned with the cause of a fall in interest rates. The signal will appear the same whether a fall is brought about by increased saving or by government intervention that promotes the expansion of bank credit.

If a central bank increases the reserves in the banking system, or by open market operations (page 94) succeeds in driving or maintaining the interest rate lower than it would have been in the absence of intervention, a "false" signal will be given to entrepreneurs. The latter will shift investment from the consumer to the capital goods industries.

If the shift were due to increased saving, resulting from present consumption foregone, the new lengthened structure of production could be sustained. But the credit expansion was accomplished, whether in the form of bank notes or demand deposits, by an increase in the supply of credit money. Soon the additional money diffuses downward from the business borrowers to labor and suppliers in the form of wages and payments for goods. Unless time preferences have changed, people will hasten to spend their higher incomes in the previous consumption to savings ratios. Demand will shift from the capital to the consumer goods industries. Capital goods industries will find that investments thought to be profitable will fail for lack of demand by their entrepreneurial customers. Investment in the more remote productive facilities will turn out to have been wasteful and this "mal-investment" must be liquidated (67:17-18).

Rothbard has described the process as follows (67:19-20):

...businessmen were misled by bank credit inflation to invest too much in higher-order capital goods, which could only be prosperously sustained through lower time preferences and greater savings and investment; as soon as the inflation permeates to the mass of the people, the old consumption/investment proportion is reestablished, and business investments in the higher orders are seen to have been wasteful. ...The "crisis" arrives when the consumers come to reestablish their desired proportions. The "depression" is actually the process by which the economy adjusts to the wastes and errors of the boom, and reestablishes efficient service of consumer desires. The adjustment process consists in rapid liquidation of the wasteful investments. Some of these will be abandoned altogether...others will be shifted to other

uses....the free market tends to satisfy voluntarily-expressed consumer desires with maximum efficiency, and this includes the public's relative desires for present and future consumption. The inflationary boom hobbles this efficiency, and distorts the structure of production, which no longer serves consumers properly. The crisis signals the end of this inflationary distortion, and the depression is the process by which the economy returns to the efficient service of consumers....the end of the depression heralds the return to normal, and to optimum efficiency.

The Means and Effects of Prolonging Credit Expansion.

Austrian business cycle theory suggests a resolution of the prolonged debate on the effect of an increased money stock upon interest rates. According to Rothbard (69:858-59):

To the mercantilists--and to the Keynesians--it was obvious that an increased money stock permanently lowered the rate of interest (given the demand for money). To the classicists it was obvious that changes in the money stock could affect only the value of the monetary unit, and not the rate of interest. The answer is that an increase in the supply of money does lower the rate of interest when it enters the market as credit expansion, but only temporarily. In the long run (and this long run is not very 'long'), the market re-establishes the free-market time-preference interest rate and eliminates the change. In the long run a change in the money stock affects only the value of the monetary unit.

The depression is seen by the Austrians as the necessary and inevitable curative agent of the original malady, credit expansion. During the depression the liquidation of mal-investment proceeds until free-market preferences have been reasserted in terms of interest rates and wage and price relationships. The best that can be done by way of insuring that the process is of minimum duration is to avoid inhibiting or hampering it.

Unfortunately, in the Austrian view, credit expansion has always been viewed benevolently, or at least with indifference, by the majority of politicians and the public. It is the "cure" which attracts practically unanimous disapproval. The hallmarks of the depression stage are: liquidation of unsound businesses, idle capacity, and increased unemployment. These phenomena are to be expected where a sudden and pervasive shift in production emphasis and the allocation of resources occurs. Their existence, however, inevitably results in a call for government action to relieve the distress and restore prosperity.

However any government interference with the depression process can only prolong it and make things worse from the point of view of nearly everyone. If the government, for example, manages to keep wage rates up, temporary unemployment becomes permanent. If it keeps prices up, unsold inventories persist. Worst of all, if it encourages renewed credit expansion, then new malinvestment and later depressions are spawned (67:860).

One might hypothesize that as long as prices are stable and the interest rate is constant, an economy must be essentially sound regardless of the extent of prior intervention. Perhaps the government could "constructively" intervene for the express purpose of maintaining these aspects of stability. It should only be necessary to use price and interest-rate indicators as feedback inputs for corrective interventions by the central bank.

The epistemological divergence between Austrian and positivist economics (pages 189-90) comes into play in considering this hypothesis. Rothbard argues from the Austrian point of view as follows (69:862):

Credit expansion always generates the business cycle process, even when other tendencies cloak its workings. Thus, many people believe that all is well if prices do not rise or if the actually recorded interest rate does not fall. But prices may well not rise because of some counteracting force--such as an increase in the supply of goods or a rise in the demand for money. But this does not mean that the boom-depression cycle fails to occur. The essential processes of the boom--distorted interest rates, malinvestments, bankruptcies, etc.--continue unchecked. This is one of the reasons why those who approach business cycles from a statistical point of view and try in that way to arrive at a theory are in hopeless error. Any historical-statistical fact is a complex resultant of many causal influences and cannot be used as a simple element with which to construct a causal theory. The point is that credit expansion raises prices beyond what they would have been in the free market and thereby creates the business cycle. Similarly, credit expansion does not necessarily lower the interest rate below the rate previously recorded; it lowers the rate below what it would have been in the free market and thus creates distortion and malinvestment.

In other words it is not the absolute or relative values of any statistical indicators that are significant, but the fact of intervention itself. Intervention inherently disturbs the expression of individual preferences in the market. The precise result is indeterminate, but the extent of divergence between individual preferences and operational effects depends upon the magnitude, timing and duration of the intervention.

The foregoing quotation is especially relevant in

considering the period immediately prior to the depression experienced in America during the 1930s. As discussed previously (page 101), prices were stable for a period of several years prior to the depression. This stability in prices existed despite the fact that, in classical and Austrian terms, a sustained credit expansion of substantial magnitude was in progress. Thus a subtle variance in basic definitions in combination with a seemingly innocuous epistemological disagreement result in quite different views of the cause(s) of the Great Depression. (The opposing views are presented in the discussion of interventionist models (pages 216 and 232)).

In a 1975 interview, Dr. Hayek, one of the few economists to correctly forecast the Great Depression, described the boom-depression sequence and the effect of government intervention prior to World War II (82:2):

...you cannot indefinitely maintain an inflationary boom. Such a boom creates all kinds of artificial jobs that might keep going for a fairly long time but sooner or later must collapse...in early 1929 there was every sign that the boom was going to break down... at the time the Federal Reserve was not only unwilling but was unable to continue the expansion because the gold standard set a limit to the possible expansion. Under the gold standard...an inflationary boom could not last very long. In 1929, a crisis and depression of some length was inevitable. But it certainly need not have lasted for something like 10 years. It ought to have been over in two or three years if sensible policies had been followed.

Instead of allowing the market to correct the misdirections of labor and resources that occurred during the inflationary boom, the government believed they could cure the depression by keeping up wages. Hoover began the

policy, but Roosevelt greatly expanded it. ...Policies of government intervention in the economy led internationally to exchange controls, restrictions on foreign trade and other policies that only made matters worse.

The Austrian prescription for elimination of the business cycle is straightforward. All that is necessary to abolish the alternate periods of boom and depression is to reestablish the linkage of savings with investment. Before money can be loaned, the owner must agree to relinquish his claim upon that money for the period of the loan. The creation of circulating credit money, whether in the form of demand deposit accounts or bank notes must be proscribed. In brief, the Austrians advocate a policy of 100 per cent specie reserves for banks and governments (69:862).

It should be emphasized that the objective of Austrian policy is not to eliminate either money substitutes or credit. Rather it is to maintain the correspondence of substitutes with monetary metal (one-to-one ratio in terms of monetary units) and to insure that the quantity of money and substitutes available for investment does not exceed the quantity saved (consumption foregone). The mechanics or feasibility of implementing such a policy are not relevant to this thesis. The point of relevance is this: from the Austrian point of view, economic distortions and the severity of readjustments will be greater to the extent that deviations from the advocated policy are tolerated or encouraged.

The progressive weakening of constraints upon national and international credit expansion was traced in Chapters

III through VI. This process may be sequentially summarized as follows:

1. Banking competition was limited by state and national government control of entry.
2. Fractional reserve banking was encouraged by allowing banks to suspend specie payments while continuing to operate.
3. A central bank (the Federal Reserve System), capable of coordinating credit expansion, was established (1913).
4. Commercial banks and the United States Treasury were relieved of the domestic obligation to redeem in specie (1933).
5. The dollar was devalued (1933).
6. The probability of exciting domestic bank runs was diminished by establishment of the Federal Deposit Insurance Corporation (1933).
7. The gold-exchange standard was substituted for the gold standard (1944).
8. An institution (the IMF), useful for coordinating credit expansion rates among countries, was created (1944).
9. The United States Treasury was relieved of the obligation to redeem in silver (1968).
10. An international fiat money (SDR's) was created (1970).
11. The United States Treasury was relieved of its remaining limited obligation to redeem in gold (1971).
12. Currency exchange rates were allowed to float (1971-present).

The policies actually followed have clearly not been those recommended by Austrian economists. The relaxation or removal of constraints has made possible prolonged credit expansion. Hayek views the more recent progressive elimination of constraints upon inflation (in the sense of credit

expansion) as having occurred in three major stages beginning with departure from the gold standard in 1933. In his view (82:2-3):

One of the single most important mistakes that unnecessarily prolonged the depression was Roosevelt's decision to go off the gold standard. ...Roosevelt completely upset the whole international monetary system by that decision at just a time when there were signs of some recovery. ...Abandonment of the gold standard also set the stage for future inflation through a gradual elimination of restrictions on the free actions of politicians. Although the U.S. nominally continued on the gold standard, in fact the gold standard ended in 1933....Then came Bretton Woods after World War II with its principle that no country should ever be required to contract its currency--all the adjusting would be done by expanding the money supply of the countries that had a favorable trade balance. That was the second stage. The third stage was abandoning fixed exchange rates and accepting flexible exchange rates and floating currencies. This means, of course, that a country is completely free in its monetary policy.

As long as the people who manage the national currency had to pay some attention to maintaining these rates there was some restraint on them. Now that they've gotten rid of that restraint, they are free to inflate all they want. The result is that we've had an inflationary boom that has lasted for some 35 years--an unprecedented situation.

Each time a depression threatened, the government intervened to prevent completion of the readjustment process. Thus the boom has continued basically uninterrupted. The rising prices accompanying the secular credit expansion have occasionally leveled off for brief periods due to a reduction in the rate of expansion. These periods have come to be called "recessions" and the accompanying symptoms of economic readjustment are so politically unpopular that government has quickly acted to reinstate the boom conditions

by injecting additional circulating credit, principally into the loan market.

One might suppose that a stage has been reached in economic development that permits indefinite expansion of credit and postponement of liquidation. Might not a co-operating international cartel of state banks functioning through the medium of a single world fiat money engage in unlimited credit expansion?

Such a credit expansion is possible, but only with severe consequences in the form of a runaway inflation or "flight from money." When the government and banking system begin, or renew, credit expansion, the public usually reacts to the first price increases by postponing purchases. Failing to perceive the true nature of the inflationary process, people increase the size of their cash balances in the hope that prices will soon fall. The social demand for money increases. As a result, prices tend to increase less than in direct proportion to the increase in the quantity of money (69:875).

Eventually people realize that prices will continue to rise and they step up their purchases of goods. They perceive that one gains by purchasing immediately rather than waiting until a future date when the purchasing power of the monetary unit has decreased. At this point, the social demand for money falls and prices begin to increase more rapidly than the money supply increases. The accelerated price rise leads to complaints of a "scarcity of money" and

stimulates the government to greater efforts at expansion, thereby causing more accelerated price increases. This process cannot be indefinitely prolonged, however. Eventually the public begins a "flight from money," spending money as soon as possible on real goods as a store of value for the future. This rush to be rid of money causes extremely rapid price rises. The value of the monetary unit may fall practically to zero (69:876).

When this runaway stage is reached, the economy breaks down. The public has eliminated the burden of inflation by lowering the demand for money to such an extent that the government's money has become worthless. Whether one restricts this analysis to a closed national economy, or includes consideration of a world economy employing fiat money issued by a monopoly bank, the conclusion is the same. There is an "ultimate constraint" upon credit expansion: public willingness to use the medium of exchange issued or decreed by the state.

By nearly eliminating all but the ultimate constraint, governments have succeeded in promoting a world-wide credit expansion of enormous proportions. According to the Austrians, this has had two very undesirable effects in terms of the basic soundness of national economies of the Western World. First, there has been the previously discussed increasing malinvestment resulting from manipulation of interest rates. Second, the constantly rising level of prices has led to inadvertent consumption of capital.

Entrepreneurs, particularly those with long-term investments in durable capital goods, have been led by an "accounting illusion" to believe that their profits were substantial. Actually they have been consuming a part of their original investment. Additionally, consumers were led to purchase items that would not have been purchased had the subsequent rapid rise in living costs been foreseen. Mises explained this consequence of inflation as follows (52:549-50):

One of its consequences is that it falsifies economic calculation and accounting. It produces the phenomenon of illusory or apparent profits. If the annual depreciation quotas are determined in such a way as not to pay full regard to the fact that the replacement of worn-out equipment will require higher costs than the amount for which it was purchased in the past, they are obviously insufficient. If in selling inventories and products the whole difference between the price spent for their acquisition and the price realized in the sale is entered in the books as a surplus, the error is the same. If the rise in the prices of stocks and real estate is considered as a gain, the illusion is no less manifest. What makes people believe that inflation results in general prosperity is precisely such illusory gains. They feel lucky and become openhanded in spending and enjoying life. They embellish their homes, they build new mansions and patronize the entertainment business. In spending apparent gains, the fanciful result of false reckoning, they are consuming capital....For those not personally engaged in business and not familiar with the conditions of the stock market, the main vehicle of saving is the accumulation of savings deposits, the purchase of bonds and life insurance. All such savings are prejudiced by inflation. Thus saving is discouraged and extravagance seems to be indicated. The ultimate reaction of the public, the 'flight into real values' is a desperate attempt to salvage some debris from the ruinous breakdown. It is, viewed from the angle of capital preservation, not a remedy, but merely a poor emergency measure.

It can, at best, rescue a fraction of the saver's funds.

An Austrian Prognosis. The essence of the Austrian model of inflation is the existence of a sustained government-fostered credit expansion. The expansion has been sustained by weakening or eliminating the various legal and market restraints as each came into play and began to impede further expansion. Through the creation of an ever larger quantity of circulating credit or credit money, the purchasing power of each monetary unit has been decreased; the re-allocation and correction process or depression has been postponed; and a great amount of real wealth has been transferred to the government and individuals or private agencies which are large net debtors. This transfer has been largely at the expense of those on fixed nominal incomes and those who have attempted to save through annuities, life insurance, savings accounts and bonds. The expansion has caused mal-investment, waste of resources and inefficiency in the satisfaction of consumer wants. The distortions have been partially obscured by the enormous productivity gains made possible by a relatively (compared to the majority of countries) free market in the United States and a few other countries. The credit expansion has recently reached a point where the danger of a flight into goods has become very real.

Contemporary Austrian writers are unanimously pessimistic about the immediate future and, given a continuation of existing economic policies and doctrine, the long-term

as well. In considering the outlook as of April of 1975, Hayek suggested the following scenario (82:4-5):

Now the resumption of an expansionist credit policy can still once more catch on for a time and temporarily revive the boom. And I fear that might happen. You see, if at the present moment they should succeed in prolonging the inflationary boom for another year or two, the ultimate collapse is going to be worse than it would be now. My general impression is that an inflationary expansion isn't very likely to catch on, but it may. I can't exclude that possibility. But personally, I would rather have a more moderate depression now than a worse one in two years time....But as long as people believe--and I think the great majority of people do believe--that the government has the power to eliminate unemployment quickly and lastingly, the government won't be able to stop the inflationary process. I think we have to teach people first that this is the price we must pay for the abuse of monetary policy for so many years. You must not expect that after having done the wrong thing for so many years, we'll get away cheaply after that....

I'm fairly certain about two things. First, that attempts at so-called pump priming will probably sooner lead to acceleration of the price rise, rather than an increase in employment, and people will demand control of the price rise. The government will clamp on controls and pump more money into circulation, which will have the disappointing effect of not creating much employment.

Secondly, these developments will drive the country into a combination of price controls, public works of one sort or another and gradually into a completely government controlled economy. Yes, I think the likelihood is that we will be moving into a completely controlled economy with depression, and employment directly dependent on government spending on public works. Of course this is a situation from which it is very difficult to extricate yourself.

IX. Interventionist Models of Inflation

Unlike the classicists and Austrians, economists representative of the two schools of thought presented in this chapter advocate state intervention in national economies. They differ primarily with respect to the form and extent of this intervention. Thus Milton Friedman limits his advocacy primarily to the control of the national money supply. John Maynard Keynes, on the other hand, advocated that the state play a major role in fostering employment, investment and consumption.

There are probably no economists today who can be classified as strict Keynesians. But the contemporary emphasis upon such ideas as national income, gross national product and full employment is characteristic of Keynes' way of thinking. Since Keynes' theories have so profoundly affected the development of modern economies and economics, he is treated as the sole representative of the Keynesian school in the section which follows and his ideas are discussed in some detail.

Milton Friedman, of the University of Chicago, has contributed in large measure to the growing concern with monetary expansion that has become apparent in recent years. He has therefore been selected as the primary source for articulation of the monetarist views on inflation presented in the second section of this chapter.

The Keynesian Model

At the time John Maynard Keynes (1883-1946) published The General Theory of Employment, Interest and Money (1936), the world was still immersed in the Great Depression. Naturally the problem of ending and avoiding depressions was a major concern of the times. Many became convinced that accepted economic theories must be deficient and that new theories and remedies were needed. Thus Keynes' General Theory could hardly have appeared at a more favorable time (45:207).

Keynes included the word "general" in the title of his treatise to distinguish it from what he termed the "special case assumed by the classical theory" (40:3). Only twenty years earlier Albert Einstein created the general theory of relativity and showed that classical Newtonian physics was simply a special case. Keynes offered an analagous special case argument for classical economics in the General Theory (page 28). Both Einstein and Keynes revolutionized thinking in their fields, the latter initiating what has come to be known as the "Keynesian revolution" or "new economics."

One of Keynes' central tenents is that the free market suffers from certain defects which governments can and should correct. The General Theory provides the intellectual justification for this tenet as well as theoretical guidance for the formulation of appropriate government interventionist policies. The fact that Keynes offered only theoretical guidance has led to confusion among his followers. Advocates

have not been able to agree on the particular mix of monetary and fiscal measures required for implementation of "full" employment policies (45:207).

Keynes' propensity for coining new terms, imparting new meanings to classical terms, and using both new and conventional terms to mean different things in different contexts, makes his reasoning in the General Theory difficult to follow. To be fairly assured of following the argument, one needs to read the entire work. Keynes' basic position, however, is summarized in the section which follows in order to provide needed background for developing a Keynesian model of inflation.

Keynes' Theories: An Overview. The premise underlying Keynes' General Theory appears to be that, in most western economies, there is frequently less than full employment. Consequently national income is frequently less than is theoretically attainable. According to Keynes, these sub-optimal results are due primarily to a discrepancy that arises between the propensity to consume and the inducement to invest. This discrepancy is manifest as a chronic deficiency in effective demand caused by excessively high interest rates and consumer hoarding of cash.

In order to improve the performance of an economy, particularly with respect to national income and employment, it is necessary for the central government to intervene with a planned combination of taxes and expenditures (fiscal policy) and monetary policy. Fiscal policy should be designed

to compensate for fluctuations in consumer spending. Monetary policy should aim at maintaining interest rates sufficiently low to induce adequate investment spending. The hallmark of success in the planning and execution of government policies is the achievement of full employment.

Keynes summarized and justified his views in the following quotation from the General Theory (40:378-81):

The State will have to exercise a guiding influence on the propensity to consume partly through its scheme of taxation, partly by fixing the rate of interest, and partly, perhaps, in other ways. Furthermore, it seems unlikely that the influence of banking policy on the rate of interest will be sufficient by itself to determine an optimum rate of investment. I conceive, therefore, that a somewhat comprehensive socialisation of investment will prove the only means of securing an approximation to full employment...It is not the ownership of the instruments of production which it is important for the State to assume. If the State is able to determine the aggregate amount of resources devoted to augmenting the instruments and the basic rate of reward to those who own them, it will have accomplished all that is necessary. Moreover, the necessary measures of socialisation can be introduced gradually and without a break in the general traditions of society.

...the enlargement of the functions of government, involved in the task of adjusting to one another the propensity to consume and the inducement to invest, would seem to a nineteenth-century publicist or to a contemporary American financier to be a terrific encroachment on individualism, I defend it, on the contrary, both as the only practicable means of avoiding the destruction of existing economic forms in their entirety and as the condition of the successful functioning of individual initiative.

...The authoritarian state systems of to-day seem to solve the problem of unemployment at the expense of efficiency and of freedom. It is certain that the world will not much longer tolerate the unemployment which, apart from brief intervals of excitement, is associated--and, in my opinion, inevitably associated--with present-day capital-

istic individualism. But it may be possible by a right analysis of the problem to cure the disease whilst preserving efficiency and freedom.

It should be noted that Keynes did not simply assert that state intervention is necessary in order to alleviate the unemployment associated with depressions. Samuelson has observed that: "It is these 'depression models' which are often, but wrongly, associated with Keynes; and if they were his sole cases, his ideas would only rarely be of great interest" (73:318). Keynes seemed to advocate a long-term program for centralizing control of banking and investment.

Many of Keynes' ideas and terms have evolved as an integral part of contemporary macroeconomics. The twentieth-century evolution of domestic as well as international policies and institutions has been distinctly Keynesian. Therefore, if one wishes to arrive at a reasonable understanding of contemporary inflation, it is necessary to consider the implications of Keynes' views in practice as well as theory. An appropriate place to begin is with Keynes' view of the trade cycle and his prescription for its abolition.

Keynes' Cycle Theory. From the standpoint of non-interventionist cycle theory discussed in Chapter VIII, the existence of a boom is cause for concern, as the consequence of a boom is always a depression. Rapidly rising interest rates often indicate that a substantial boom, based upon credit expansion, has occurred and is entering the liquidation phase. This interest rate rise is simply the

natural result of increasing illiquidity among banks and debtors. The rise is caused by a shortage of funds to loan in the face of growing demand.

Keynes viewed the matter somewhat differently (40:322):

Thus the remedy for the boom is not a higher rate of interest but a lower rate of interest! For that may enable the so-called boom to last. The right remedy for the trade cycle is not to be found in abolishing booms and thus keeping us permanently in a semi-slump; but in abolishing slumps and thus keeping us in a quasi-boom.

It is not clear, within the context of the material accompanying this passage, to what group of economic theoreticians it is directed. But it certainly is not meaningful for non-interventionists of the Mill or Mises persuasion. There is no free-market mechanism for proposing or imposing any particular interest rate to halt a boom, unless one wishes to consider the potential exhaustion of loanable funds as a "proposed remedy."

If one assumes the existence of a central authority empowered to control interest rates, however, the meaning of the passage is quite clear. What has been characterized by others as a boom is considered by Keynes to be simply an economy that is performing optimally. Rather than becoming alarmed at signs of prosperity and imposing higher interest rates, the central authority should lower interest rates thereby perpetuating prosperity.

If less than optimal performance is an inherent feature of market operation, how do these periods of prosperity originate and why do they seem to end in depression? One

can easily envision the normal sluggish functioning of an economy with a stable level of relatively high unemployment, but how does a boom arise? According to Keynes (40:322):

The boom which is destined to end in a slump is caused, therefore, by the combination of a rate of interest, which in a correct state of expectation would be too high for full employment, with a misguided state of expectation which, so long as it lasts, prevents this rate of interest from being in fact deterrent. A boom is a situation in which over-optimism triumphs over a rate of interest which, in a cooler light, would be seen to be excessive.

Keynes believed that entrepreneurs, for some reason, become overly optimistic about the future and increase expenditures to a level appropriate for a lower interest rate than actually exists. Were the interest rate sufficiently low to create full employment, such optimism would be justified. At the existing rate, however, demand expectations will not be realized. Unless the interest rate is lowered to a level commensurate with full employment, the misguided expectations will not last and the boom will turn into a slump.

In Keynes' view, prior to publication of the General Theory, the only boom of sufficient intensity to bring full employment occurred during World War I (40:322). During the period 1928-29, employment was at a "satisfactory" level, but there were no indications of a shortage of labor other than in certain specialized areas. Nor, according to Keynes, was there any sign that over-investment had occurred in the sense that:

...the standard and equipment of housing was so high that everyone, assuming full employ-

ment, had all he wanted at a rate which would no more than cover the replacement cost, without any allowance for interest, over the life of the house; and that transport, public services and agricultural improvement had been carried to a point where further additions could not reasonably be expected to yield even their replacement cost....In fact, the rate of interest was high enough to deter new investment except in those particular directions which were under the influence of speculative excitement and, therefore, in special danger of being over-exploited; and a rate of interest, high enough to overcome the speculative excitement, would have checked, at the same time, every kind of reasonable new investment. Thus an increase in the rate of interest, as a remedy for the state of affairs arising out of a prolonged period of abnormally heavy new investment, belongs to the species of remedy which cures the disease by killing the patient (40:323).

It is clear, from the preceding quotation, that Keynes considered economic activity in the period immediately prior to 1929 to be typical for economies performing in a satisfactory manner. At least in the United States and Great Britain, there were, in Keynes' view, no signs of economic excesses other than in isolated occurrences of speculative activity. While Keynes did not specifically state that the Federal Reserve allowed or caused interest rates that were too high in America, his cycle theory implies that this was a principal cause of the ensuing depression.

As long as full employment has not been reached and there are no signs of over-investment, then according to Keynes, interest rates may be safely lowered to the point where these conditions begin to appear. It should be noted that in the context of a free market, Keynes' criterion for over-investment would, by itself, imply the existence of

entrepreneurial error. Entrepreneurs ordinarily do not invest in housing, transportation or agricultural improvements unless they expect to receive a return equal, at least, to the present value of the series of anticipated rents discounted at the current market rate of interest. If conditions were such that Keynes' over-investment criterion applied throughout the economy, entrepreneurs might characterize the situation as a mild slump.

One is impelled to the notion that unless full employment has been reached, government spending is needed to insure that "everyone has all he wants" of goods and services. Only government would guarantee such provisioning for a prospective return no greater than the cost of replacement. Entrepreneurs would not knowingly invest to the limiting point of over-investment as defined by Keynes. Full employment, therefore, becomes both the desideratum and the only real constraint upon central bank efforts to induce investment by lowering interest rates. This full employment aspect of Keynesian theory has important implications for a model of inflation and the concept should be examined with some care.

The Full Employment Economy. From the standpoint of the classical and Austrian economists, the purchase of labor is not different in character or kind from the purchase of goods and services in general. A manufacturer, who produces a particular good and then attempts to sell it in the market, is faced with two alternatives. He either sells at a price equal to or less than the best offer, or he does not sell.

If a minimum price is imposed, either by the state or a trade association to which the manufacturer belongs, and that minimum is higher than the best market offer, there will be no sale. Further, if no one desires the manufacturer's particular product then it is not an economic good and he has no choice but to retain it or offer it as a free good. In any event, the highest price the manufacturer can ever receive for his good is determined by his highest bidding potential customer.

In the non-interventionist view, exactly the same situation exists for the wage-laborer as for the manufacturer. If the laborer insists upon receiving, or is institutionally required to receive, a wage rate higher than that offered by the highest bidding potential employer, he will remain unemployed. Simply stated, the premise is this: in a free market, "economic" labor will always be salable. There is only voluntary unemployment in other than a "change of jobs" or frictional sense. If intervention (coercion in any form) exists, however, any amount of involuntary unemployment is possible, depending upon the nature and extent of the intervention.

In contrast with this view, Keynes defined "voluntary" unemployment as:

...due to the refusal or inability of a unit of labor, as a result of legislation or social practices or of combination for collective bargaining or of slow response to change or of mere human obstinacy to accept a reward corresponding to the value of the product attributable to its marginal productivity (40:6).

Keynes' reference to marginal productivity is simply a roundabout way of saying that the laborer refuses the offer of the highest bidding potential employer. While it is true that the employer bids on the basis of his estimate of the laborer's marginal productivity, the size of the bid is all that is relevant to the employment question.

By definition, Keynes eliminated almost any conceivable kind of involuntary unemployment. The element of voluntarism, present in the classical and Austrian analysis, has been completely obscured in this aggregation of motives and impositions. In the Keynesian view a person who is prevented from working by a state-imposed minimum wage is as much "voluntarily unemployed" as one who chooses to live off savings or insurance while awaiting an offer of higher wages. If care is not exercised in subsequent analyses, this treatment of labor as an aggregate may lead to misunderstandings.

Keynes related his basic position on employment to the economy as a whole as follows (40:27-28):

When employment increases, aggregate real income is increased. The psychology of the community is such that when aggregate real income is increased aggregate consumption is increased, but not by so much as income...Thus, to justify any given amount of employment there must be an amount of current investment sufficient to absorb the excess of total output over what the community chooses to consume when employment is at the given level...given the propensity to consume and the rate of new investment, there will be only one level of employment consistent with equilibrium...This level cannot be greater than full employment, i.e. the real wage cannot be less than the marginal disutility of labor. But there is no reason in general for expecting it to be equal to full employment. The effective demand

associated with full employment is a special case, only realised when the propensity to consume and the inducement to invest stand in a particular relationship to one another. This particular relationship, which corresponds to the assumptions of the classical theory, is in a sense an optimum relationship. But it can only exist when, by accident or design, current investment provides an amount of demand just equal to the output resulting from full employment over what the community will choose to spend on consumption when it is fully employed.

Keynes considered the key to the problem of unemployment to be the "psychological law" that "when our income increases our consumption increases also, but not by so much" (40:29). Some portion of any increase in income will not be expended in the purchase of consumer or investment goods. Consequently, the aggregate of consumer and investment demand will fall short of that amount which would induce sufficient investment to bring about full employment.

Assuming that this psychological law is valid and that one of its manifestations is an employment level less than optimum, how does one recognize when conditions are in accord with the classical assumptions and full employment has been achieved? According to Keynes (40:303):

We have full employment when output has risen to a level at which the marginal return from a representative unit of the factors of production has fallen to the minimum figure at which a quantity of the factors sufficient to produce this output is available.

As long as a "representative unit" of one of the factors of production yields some positive return as a result of its being brought into production, a state of full employment equilibrium has not been reached. There is an alternative

criterion for full employment which Keynes presented in the General Theory (40:26):

...a situation in which aggregate employment is inelastic in response to an increase in the effective demand for its output.

When a point is reached in the demand for the products of labor such that a further increase in aggregate demand would cause no additional labor to be forthcoming, full employment has been reached.

The volume of employment, according to Keynes, is determined at any given time by the propensity to consume and the rate of new investment. The existence of an insufficient demand often will bring the hiring of labor to a halt before a level of full employment has been reached. Once the level of full employment has been reached, however, the phenomenon which Keynes termed "true inflation" may appear. This condition is the basis for the Keynesian model of inflation developed in the section which follows.

True Inflation. By means of public works spending, for example, the government may increase employment, assuming that other investments remain unchanged. The increased employment will result in an increased real national income. According to the consumption psychology of the community, the overall level of employment may be increased by several times the increment in employment directly resulting from government spending because of the additional income which becomes available for consumer spending (40:116-17).

There is a point, however, beyond which an increase in

employment may produce different effects. Keynes described this situation as follows (40:118):

When full employment is reached, any attempt to increase investment still further will set up a tendency in money-prices to rise without limit, irrespective of the marginal propensity to consume; i.e., we shall have reached a state of true inflation. Up until this point, however, rising prices will be associated with an increasing aggregate real income.

A further increase in the quantity of demand produces no further increase in effective output once full employment is reached. If demand is increased beyond the point of full employment, by any means, there will be a proportionate increase in factor costs. Prior to this point, every increase in demand will spend itself partly in increasing costs and partly in increasing output. A level of demand which brings full employment is the critical level above which true inflation begins (40:303). Below the critical level, prices may be rising but this rise is associated with an increase in national income and is, therefore, not undesirable.

Keynes did not consider inflation to mean simply a rise in prices. This point is made clear in the following statement (40:304):

The view that any increase in the quantity of money is inflationary (unless we mean by inflationary merely that prices are rising) is bound up with the underlying assumption of the classical theory that we are always in a condition where a reduction in the real rewards of the factors of production will lead to a curtailment in their supply.

Keynes apparently recognized the likelihood that an increase in the supply of money would lead to higher prices. The

foregoing quotation also indicates that he did not accept the premise that lower real wages would necessarily bring a reduction in the volume of employment, a point deserving of further attention.

The Keynesian Justification of Inflation. The preceding section suggested a thesis which Keynes elaborates upon in different parts of the General Theory. The thesis is that labor is apt to be withdrawn if money wages fall, but not if money wages remain constant, or increase, while real wages fall (40:9). Rising prices will not be perceived by laborers or wage-rate regulators as readily as falling wages. This thesis led Keynes to observe that (40:268):

Having regard to human nature and our institutions, it can only be a foolish person who would prefer a flexible wage policy to a flexible monetary policy...A method which it is comparatively easy to apply should be deemed preferable to a method which is probably so difficult as to be impracticable.

Considering that Keynes was writing at a time when concerted efforts were underway, in both the United States and Great Britain, to maintain wage rates in the face of falling demand, this passage is significant. The classical economists had assumed that wage rates would be allowed to adjust to market demand in the same way as the prices of goods and services in general. This point was discussed on page 218. If one accepts as given, that wages will not be permitted to fall, then the only readily apparent solution for the resultant unemployment is to increase the money wage to a point where full employment (or at least a satisfactory level

of employment) can be reestablished.

There are two politically expedient means by which to accomplish such an end if one excludes totalitarian methods. The state can directly hire the unemployed at whatever wage level proves sufficient, or it can lower interest rates to a point where investment spending causes a rise in wage rates in the capital goods sector of the economy. This latter mechanism will probably entail a substantial lag between execution and effect (increased employment). The fact that entrepreneurs may be reluctant to undertake new ventures in the depths of a depression also tends to inhibit the success of an easy money policy.

If the state simply hires the unemployed, the problem of funding the required program arises. An increase in taxes would divert demand from consumers and investors to the state treasury with no net increase in aggregate demand. If the state had acquired a surplus from past revenues, then of course those funds could be used for direct employment spending; but surpluses are not characteristic of the state. There is but one really practical mechanism available: deficit spending financed by credit expansion. This means the state must, in effect, print paper money in order both to reduce interest rates and to hire the unemployed.

Keynes was well aware of the writings of Mill and the Austrians. Mill is quoted in several different places in the General Theory and von Mises and Hayek are mentioned by name on pages 192-93. These well-known economists were cited out

of context and with cavalier dismissal of their theories. It is difficult to believe that Keynes would have neglected a rigorous refutation of their analyses of credit expansion and its consequences had he not a more immediate and pressing purpose in mind.

Keynes knew, as did anyone familiar with economic history including even the Reverend Woodbridge (page 47), that a rapid injection of credit money will drive down interest rates in the short term. He also knew, that over the long term, prices will rise and that if carried too far, credit expansion will result in a "flight from currency" (40:207, 306,329). It seems quite probable that Keynes adopted his novel (at the time) terminology, variable definitions, and nebulous abstractions in order to achieve an immediate purpose rather than to introduce to the world a new economics.

Keynes offered a hint of his motive in the General Theory as previously quoted on page 213:

But it may be possible by a right analysis of the problem to cure the disease whilst preserving efficiency and freedom.

Perhaps it is significant that Keynes chose the word "right" in preference to "correct" to describe the desired analysis.

Support for the view, that Keynes was writing a solution for the problem of the time rather than a "general theory" of employment, interest and money, was offered by one of Keynes' leading opponents in economics and long-time personal friend, Dr. Hayek. In 1944, Hayek wrote a book entitled The Road to Serfdom in which he argued that the theories of

Keynes, if carried too far, would lead to the end of individual liberty and to totalitarian government. Keynes endorsed the book with the statement that he was "not only in agreement with it, but in deeply moved agreement" (82:3).

In the course of an interview in 1975, Hayek was asked about Keynes' enthusiastic reception of the book. Hayek responded with the following statement:

It didn't surprise me that he accepted the thesis of the book because he was basically of a libertarian outlook and concerned about any threat to liberty. It was not against Keynes that the Road to Serfdom was directed. I do, however feel that Maynard would have changed his views had he lived longer. What I blame Keynes for is to have called his major work a General Theory. It wasn't a general theory. It was admittedly adapted to the special needs of the 1930's when we had a general period of deflation. It was tempered for the moment and was never intended to be a general theory.

He was up to a point aware of this when I saw him in early 1946. I asked him whether he wasn't getting alarmed that some of his theories had led into inflation. He said-"Oh, Hayek, never mind. Don't be alarmed. These views were frightfully important in the 1930's. If they should ever become dangerous, just watch me. I'm going to turn public opinion around like this." And he made a movement of his hand, indicating a complete change of direction and emphasizing he had this great confidence that he was able to play on public opinion as an instrument. Six weeks later he was dead and couldn't do it.

I think it was a great calamity that he died when he did.

Apparently, in Hayek's opinion, Keynesian economics is a "depression model." This view conflicts with that of Samuelson which was presented previously (page 213). It is easy to see why Keynes' theories became widely accepted and have provided the basis of contemporary macroeconomics.

Keynes, himself, offered only very subtle hints that he was not, in fact, advocating the permanent socialization of monetary and investment functions.

In realistic terms, his prescriptions for lessening the threat of political upheaval, due to the existence of large numbers of potentially hostile unemployed workers, might not have been accepted had he been less erudite and sophisticated in his advocacy role. Unfortunately, Keynes did not live to "turn around" the expansionist policies for which his brilliant work provided the intellectual sanction. There are signs that a turn-around is beginning, however, in the form of increasing interest in the monetarist model of inflation, the subject of the section which follows.

The Monetarist Model

Following publication of Keynes' General Theory in 1936, government economic policies in the United States and Great Britain became characteristically Keynesian. Keynes' central tenet, that governments should intervene in national economies for the purpose of correcting deficiencies in aggregate demand, has been rather consistently accepted and applied over the past four decades. The stated goal of intervention has generally been to achieve full employment (see page 108 for example) exactly as advocated by Keynes.

The Keynesian philosophy was especially apparent in government policies of the Kennedy Administration in the period 1961-64. A description of fiscal policy during that period by the Council of Economic Advisors illustrates this point (37:131-32):

The basic task of Federal fiscal policy is to help to provide a total market demand for goods and services that neither exceeds nor falls short of the economy's productive capacity at full employment. Maintaining this continuous balance between demand and capacity normally involves two basic requirements. First, since total productive capacity grows steadily over time, total demand also must grow. Second, since fluctuations in private demand occur independently of Federal policy, these fluctuations must be offset in order to avoid dips or surges that could touch off recession or inflation.

Since 1960, a third requirement has been added as a result of earlier failures to meet the first two: the need to eliminate the large gap that developed in the late 1950's between potential output and demand. Thus, in the last four years the main challenge to United States policy has been to stimulate a massive growth in total demand, sufficient not merely to keep up but to catch up with the growth of productive capacity.

During the past four years fiscal policy has been dominated by this purpose.

During the four-year period described in the preceding quotation the United States embarked upon an extensive space program and began to escalate the war effort in Viet Nam. Both of these actions tended to increase aggregate demand. Various tax measures intended to stimulate consumer and investment spending were enacted. Monetary policy, on the other hand, was simply characterized as "accommodating" during the entire period (37:132).

By the end of the 1960's, the term "creeping inflation" was replaced in common discourse by the more appropriate "galloping inflation." Also, crises began to occur in the international currency markets with increasing frequency. (Chapter VI). At this point, monetary policy became a subject of growing interest and debate.

Keynes' General Theory had become popular in conjunction with the Great Depression. In similar fashion, a book entitled A Monetary History of the United States: 1867-1960 (29) and published in 1963, became popular in conjunction with the appearance of a high rate of inflation and monetary crises. The national fixation upon full employment, characteristic of the post-depression years, was gradually displaced by the current obsession with "money supply" and "Fed watching."

The Monetarists Versus the Keynesians. Combining their efforts, Milton Friedman and Anna J. Schwartz compiled A Monetary History of the United States: 1867-1960. This for-

midable volume, exceeding 800 pages, is a detailed study of 93 years of American monetary history and policies. By computerized processing of statistical data and employing such techniques as multiple regression analysis, Friedman and Schwartz found a relatively stable relationship between the money supply (M2) and the gross national product (GNP) statistics (29:767). The principal implication of this relationship is that control of M2 by the Federal Reserve will essentially determine the GNP over extended periods. Therefore, if M2 is properly controlled, the government need not be greatly concerned with the application of fiscal measures to achieve national income and full employment objectives.

In Friedman's view (28:17):

...the whole Keynesian argument for the possibility of a full employment policy arose out of the supposition that it was possible to get workers (at least in the 1930's when Keynes wrote The General Theory) to accept lower real wages produced by inflation that they would not have accepted in the direct form of a reduction in nominal wages.

Bearing in mind the all-inclusive definition of voluntary unemployment which Keynes used (page 218), Friedman's indictment of the Keynesian argument is slightly misleading. Keynes argued, in effect, that a rise in money wages would increase employment irrespective of whether workers were simply victims of a "money illusion" or were unemployed as a result of institutional rigidities such as minimum wage laws and long-term employment contracts. Perhaps the money illusion would not last, but institutionalized rigidity

might persist for some time.

Professor A.W. Phillips, writing in the Keynesian economic climate of 1958, was led to assume that anticipated nominal (money) wages and real wages move together. This assumption was brought to the forefront of policy formulation and planning by widespread acceptance of the "Phillips Curve," a construct which purports to relate the rate of unemployment to the rate of change of money wages over time (28:14-15).

Friedman, while continuing to employ many of the Keynesian concepts (liquidity preference and credit as money, for example) broke with the Keynesian tradition of emphasis on fiscal rather than monetary policy and rejected the idea that there is a Phillips-curve kind of trade-off between unemployment and the rate of inflation. Friedman believes that over the long run the Phillips curve is vertical; that is, unemployment is the same at a given per cent anticipated rate of inflation as at a zero per cent anticipated rate. He bases his belief on the hypothesis that "...you can't fool all the people all the time" (28:28). This hypothesis has important implications for government policy. Friedman contends that:

...the only way in which you ever get a reduction of unemployment is through unanticipated inflation. If the government follows any fixed rule whatsoever, so long as the people know it, they will be able to take it into account. And consequently you cannot achieve an unemployment target other than the natural rate by any fixed rule. The only way you can do so is by continually being cleverer than all the people, by continually making up new rules and using them for a while until people catch up on them...it

is a better approach to policy to say that you are going to co-operate with the people and inform them of what you are doing, so giving them a basis for their judgments, rather than trying to fool them...you are fooling yourself if you think that you can fool them (28:29).

Friedman has proposed a monetary policy consistent with the view that people ought to be made explicitly aware of, rather than encouraged to "game," government monetary strategies. He advocates that the Federal Reserve System be abolished and that a minor department of the United States Treasury assume responsibility for maintaining a constant five per cent per year rate of growth in the quantity of money (20:92).

The Friedman-Schwartz causal analysis of the Great Depression is not markedly different from that of Keynes (page 216). The explanation offered in A Monetary History is summarized in the following passage (29:699):

The monetary collapse from 1929 to 1933 was not an inevitable consequence of what had gone before. It was a result of the policies followed during those years....alternative policies that could have halted the monetary debacle were available throughout those years. Though the Reserve System proclaimed that it was following an easy-money policy, in fact it followed an exceedingly tight policy.

The proponents of the New Deal were strongly in favor of easy money. And there was rapid monetary expansion during the later thirties, produced primarily by two things: the rise in the price of gold and the rise of Hitler to power, which stimulated a capital flow to the United States.

It is noteworthy that Friedman and Schwartz viewed the depression as a "monetary" collapse or contraction in contrast with the "credit liquidation" view of the Austrians.

This distinction arises from the different definitions of money employed by the two economic schools of thought. There was, in fact, a net decrease in the quantity of credit money despite an increase in the quantity of gold. Friedman and Schwartz thus correctly assert that the Federal Reserve failed to thwart or counteract the liquidation of circulating credit.

From the monetarist standpoint, not only the Great Depression, but the less extensive fluctuations in economic activity in more recent times were due in large measure to the "stop and go" monetary policies of the Federal Reserve. Thus elimination of the Federal Reserve as an active instrument of government policy, together with a mechanical rule for monetary growth, would substantially improve economic stability.

The Mechanism of Inflation. The acceptance of the Keynesian doctrine that the role of monetary policy is to keep interest rates down, thereby reducing the interest burden of government and stimulating investment expenditures, resulted in the cheap money policies characteristic of post World War II economies. The doctrine also implied that since costs determine prices and costs are historically determined, the way to prevent inflation is to stop the rise in costs (26:13-14).

According to Friedman, repeated failures of Keynesian orthodox doctrine have occurred through the years resulting ultimately in a monetarist "counter-revolution." In country after country, wherever a cheap money policy was tried in

the postwar period, it led to inflation (26:15). Also re-examination of Federal Reserve policy during the Great Depression, showed that monetary policy had not received a proper trial. The Federal Reserve failed to provide the liquidity needed by the banking system at that time.

In Friedman's view, the final blow to Keynesian orthodoxy came through a series of dramatic experiments. These experiments tested a fundamental proposition of Keynesianism: that fiscal policy by itself is important in affecting the income level. According to Keynesians, a large deficit would have essentially the same expansionary influence on an economy whether financed by borrowing from the public or by printing money.

Monetarists rejected this Keynesian proposition, maintaining that the critical consideration is how a particular fiscal policy affects the quantity of money. To determine the net effect of total government and private spending, one must examine the behavior of two groups of people or the effects of government borrowing on interest rates. There is no simple first-order effect of government spending (26:18).

Friedman believes the critical test in the Keynesian-monetarist controversy came in 1966-67 when the Federal Reserve, fearing that inflation was developing, adopted a very restrictive monetary policy. The quantity of money was not permitted to increase at all during the final nine months of 1966. Fiscal policy, on the other hand, was very expansive. The result was a definite slowing of economic activity in the first half of 1967. In the first quarter of 1967 the

Federal Reserve began a rapid expansion of the money supply and, after the usual lag of six to nine months, income recovered and an expansion of economic activity ensued. It appeared that monetary policy had dominated fiscal policy (26:20).

There are certain key propositions which Friedman identifies with monetarism. These key propositions lead naturally into the desired monetarist model of inflation. In the order of presentation employed by Friedman (26:22-4) the propositions may be briefly summarized as follows:

1. A consistent, but not precise relation exists between the rate of increase in the quantity of money and the rate of increase in money income. If the quantity of money increases rapidly, so will money income. The converse holds also.
2. This relation is not obvious because of the variable time lag between monetary increase and its effect upon income. What happens to money today affects what is going to happen to income in the future.
3. The average lag in the rate of change of money income with respect to a change in the rate of monetary increase is six to nine months.
4. The changed rate of increase in money income appears first in output and hardly at all in prices. If the rate of monetary increase is reduced, then about six to nine months later the rate of increase of money income and also of physical output will decline. However, the rate of price increase will be affected only slightly. There will be downward pressure on prices only as a gap emerges between actual and potential output.
5. The effect on prices lags the effect on income and output by an average of six to nine months, so the total delay between a change in monetary increase and a change in the rate of inflation averages approximately 12 to 18 months. This implies that once inflation has started, it cannot be halted quickly.

6. In the short run, which may range up to five or ten years, monetary changes affect primarily output. On the other hand, for longer periods, the rate of monetary increase affects primarily prices. Actual output performance depends upon such real factors as: the enterprise, ingenuity and industry of the people; the extent of thrift; the structure of industry and government; and the relations among nations.
7. Inflation is universally a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output. There are, however, many different possible reasons for monetary increases, including gold discoveries, financing of government spending and financing of private spending.
8. Government spending may or may not be inflationary. It is inflationary if financed by creating money whether in the form of printed currency or bank deposits. If financed by taxation or borrowing from the public, government spends the funds instead of the taxpayer, lender or the person who would otherwise have borrowed the funds.

Generally, the initial effect of a change in the quantity of money is upon the prices of existing assets, bonds, equities, houses and other physical capital. An increased rate of monetary growth increases the amount of cash that people and business firms possess relative to other assets. The holders of the new cash, which appears to be an excess, try to adjust their portfolios by purchasing other assets. Since one person's spending is another's receipts, the total amount of cash held cannot change. However, as people attempt to change their cash balances, the effect spreads from one asset to another, tending to raise the prices of assets and to reduce interest rates. Lower interest rates encourage investment spending and spending on current services rather than on existing assets. In this manner the increased quantity of

money translates into an effect on income and spending. A wide range of assets and interest rates are affected to varying degrees (26:24-5).

An important feature of this mechanism is that a change in the rate of monetary growth affects interest rates in one direction at first, but in an opposite direction later. Rapid growth initially lowers rates. However the subsequent increase in spending produces inflation and an increased demand for loans which tends to raise interest rates. Additionally, inflation introduces a discrepancy between real and nominal interest rates. This explains the fact that interest rates are highest in those countries experiencing the most rapid increases in the quantity of money and money prices. Interest rates are lowest in those countries which have experienced the lowest rate of increase in the quantity of money such as Germany and Switzerland (26:25).

The two-directional aspect of the relation between the quantity of money and interest rates is the reason for monetarists insistence that interest rates are not a reliable guide for monetary policy. According to Friedman, acceptance of the monetarist doctrine caused a change of Federal Reserve policy in 1970 from primary reliance upon interest rates in the money market to primary reliance on the quantity of money (26:25-6).

A Monetarist Caveat. The monetarist propositions imply that the important feature of monetary policy is its effect on the quantity of money rather than on bank credit, total

credit or interest rates. A further implication is that wide fluctuations in the quantity of money destabilize the economy and ought to be avoided.

Naturally there are differences of opinion among monetarists on the extent to which government can, and should, employ monetary policy as an interventionist mechanism. Friedman represents the minimum intervention faction of the school, believing that there is considerable evidence to support the view that past policies designed to stabilize the economy have produced the opposite effect. Thus he holds United States monetary authorities responsible for the recent domestic acceleration of inflation (26:27).

Other monetarists believe that deliberate changes in the rate of increase of the money supply, allowing appropriately for lags between application and effect, can be useful to counteract instabilities in the economy. They favor what has popularly been termed "fine tuning" of the economy. There is substantial prima facie evidence to suggest that the Federal Reserve board, at least since 1974, has largely adopted this view.

Friedman believes that Keynes' followers carried his views much further than Keynes himself would have advocated and that a similar propensity for over-enthusiasm exists among monetarists. Friedman feels "there is a danger that people who find that a few good predictions have been made by using monetary aggregates will try to carry that relationship further than it can go" (26:27). Our present under-

standing of the relationship between money, prices and output is so meager that Friedman does not believe a discretionary monetary policy is presently advisable (26:26).

A Monetarist Prognosis. Friedman disagrees with the Austrian view that either a runaway inflation or a depression is likely within the next few years. In a debate with John Exter, a former vice president of the Federal Reserve Bank of New York, Friedman explicitly addressed the Austrian prognosis as represented by Exter and offered some predictions of his own. According to Friedman (20:87,91-3):

I can conceive of the disaster that all of our countries become collectivist and authoritarian. If we really do have unrestrained inflation, we shall not end up with a democratic system; there is no doubt about that. We cannot maintain democracy, in my opinion, if we go through hyperinflation or hyperdeflation....

I believe that the doomsayers who are saying we are going to go either of those directions are doing an enormous amount of harm because we are not going to go in either of those directions. There is not an ounce of a chance that any of the major western nations is going to have a hyperinflation. If you look at the record of history again, the large number of hyperinflations have all been characterized by one feature, which is necessary for hyperinflation, real hyperinflation, the German type. I am not talking about high inflation rates, I am not talking about inflation rates of a mere 100 percent a year; I am talking about hyperinflation. These are times when prices double every day....That kind of a hyperinflation occurs only when countries, after military defeats, do not have a governmental structure capable of collecting taxes. That is the necessary condition for such hyperinflation. We are not facing that prospect and we are not going to have hyperinflation...

I can conceive of a great depression more readily; that doesn't require these conditions. And maybe we will have a great depression if we let ourselves go and get into a real inflation-not the kind of piddling 8 or 10 or 12 percent

one that we have now, but one that is going at 30,40 and 50 percent a year. I can imagine the public getting sufficiently excited about inflation to be willing to accept policies that would produce a great depression. But we are not going to have a great depression until that happens and that is not going to happen in the course of two or three years. It may happen; if it does, it will be 10, 20 or 30 years from now.

X. Comparison of Models

The four basic models of inflation can be related in a way that provides a fairly complete historical and conceptual picture of inflation. The classical school developed a relatively straightforward analysis of the nature of money and credit and posited the crude determinants of the purchasing power of money (PPM). The classicists also suggested that fluctuations in the PPM are the result of interactions among several factors. A secular inflation of significant magnitude is, in the classical view, the result of progressive debasement of the monetary unit which, in the extreme, leads to a pure fiat money system.

The Austrian school elaborated upon the classical theories and introduced the concept of a sustained credit expansion as the driving force of contemporary inflation. The non-interventionist approach employed by the Austrians is useful in understanding how and why the credit expansion has endured, as well as in explaining the alternate boom and recession phases of the business cycle.

Keynes, by neglecting the monetary implications of seeking to achieve a full employment, maximum output economy, provided the rationale for the sustained credit expansion identified by the Austrians. By relating the special purpose nature of Keynes' General Theory to the historical context within which it was written, one is able to see how application of the Keynesian theory in an inappropriate environment can lead to inflation.

The monetarist school is seen to be a somewhat belated reaction to the inflationary effects of the Keynesian orthodoxy. By means of a searching statistical analysis, the monetarists provided empirical evidence confirming the importance of monetary considerations in economic policy. Variances in the quantity of money viewpoint among the four schools of economic thought account for most of the differences and thus provide a useful basis for comparison of the different models of inflation.

Common Characteristics

Inflation is a decline in the purchasing power of money (PPM). The four schools of thought are in basic agreement that as the quantity of money increases, a point is reached beyond which the PPM begins to decrease, or equivalently, inflation begins. All recognize that if the general public comes to believe that the quantity of money is increasing too rapidly and without discernable limit, then a flight from money can occur, destroying the purchasing power of the circulating medium. The flight from money thus represents the extreme point of inflation upon which there is unanimous agreement that the results are both economically and politically catastrophic.

The different schools are also in basic agreement on the objectives of achieving economic growth while maintaining a monetary unit of fairly stable purchasing power. The fundamental disagreement is the means by which the quantity of money should be regulated. It is therefore

desirable to briefly examine the position taken by each school on this issue.

Significant Differences

The distinguishing characteristics of the four schools of economic thought are their respective positions on regulating the supply of money in order to maintain the PPM. By contrasting these positions one may arrive at an estimate of the inflationary implications of the monetary policies advocated by each school.

Non-interventionist Monetary Policies. The classical economists viewed money as a product of the working of the free market. In the classical view, the appropriate function of the state with respect to money is to serve as guarantor of the weight and purity of the market-evolved monetary commodities; that is, to exclude fraudulent tampering with the medium of exchange. Insofar as the state allows or promotes debasement of the monetary standard, the PPM will fall proportionately.

Assuming the exclusion of debasement, the quantity of money is naturally regulated over the long run by the cost of production. If the cost of production should fall, either as a result of technological innovation or the discovery of substantial new deposits of the monetary metals, then the PPM will gradually decline until equivalence with the cost of production is again approached. Thus from the classical standpoint, regulation of the quantity of money is as natural a function of the market as the regulation of

the quantity of any other commodities.

Over the long run, the quantity of money will tend to increase approximately in proportion to the quantity of goods and services available for purchase. The PPM is, however, not stable in any absolute sense; it is simply more stable than the exchange values of any other commodities. The relative stability of the PPM is due to the fact that, ordinarily, only minor amounts of money are destroyed or consumed in direct usage, and new additions to production usually constitute only a small proportion of the growing quantity of money in existence.

To the extent that fiduciary media (money substitutes) are employed in an economy, the issuers, whether state or private, should be subject to the requirement to redeem their issues in monetary metal of the specified weight and purity (page 174). Thus the total quantity of money and substitutes together, ought in the long run, to fluctuate around a mean level slightly in excess of the available quantity of monetary metal.

The Austrian school position on controlling the quantity of money is essentially in agreement with that of the classicists. The Austrians agree that the kind and quantity of money ought to be determined by the market. The Austrians, however, go one step further than the classicists by proscribing the practice of fractional reserve banking. They contend that fractional reserve banking is responsible for the business cycle of booms and recessions. Credit

expansion always leads to recession or liquidation; the greater and more prolonged the expansion, the more severe the ensuing liquidation of the malinvestments created during the boom.

Austrian economists believe that the total quantity of money and fiduciary media in circulation (available for spending) ought never to exceed the total stock of monetary metal. To the extent that the nominal money supply exceeds the stock of metal, a credit expansion has occurred and prices will be increased in some indeterminant proportion to this expansion. The effect will only be perceived as an actual increase in prices if production and cash balance increases are not sufficient to offset the expansion.

From the quantity of money viewpoint of both the Austrian and classical schools, a secular decline in the purchasing power of money (PPM) implies that the total quantity of money and money substitutes has increased more rapidly than the total of goods and services available for purchase. This proposition is the general non-interventionist model of inflation. Ordinary shifts in demand patterns, the business cycle, international currency movements and a secular trend of increasing productivity may interact in ways which alternately exaggerate or obscure the perceived effect of excessive monetary expansion: inflation.

Should people become convinced that inflation will persist, they will reduce their cash balances (dishoard). The effect of net disharding will be to exacerbate the

inflation and prompt further dishoarding. A situation of this kind is the initial stage of the flight from money and unless halted before it proceeds too far, will rapidly lead to a total loss of the purchasing power of the circulating medium--the limit of hyperinflation.

It is difficult to see how inflation could occur to any great extent in the modern world if the monetary policies of the classicists or the Austrians were followed. There have been no great technological innovations in the precious metal mining industry in the twentieth century and discoveries of new deposits of gold and silver have been minor in comparison with the existing stock.

If the Austrian business cycle analysis is correct (pp 192-197) the classical monetary policy is subject to criticism on the basis that credit expansion can occur and cause periods of mis-allocation of resources followed by periods of credit liquidation, rising unemployment and re-direction of productive effort. Given this cycle, it is doubtful that governments would refrain, or be permitted to refrain, from attempting to reinstate the expansion whenever a recession occurred.

If the Austrian cycle analysis is incorrect and recessions or depressions are an inherent feature of market operation irrespective of the existence of fractional reserve banking and credit expansion, then the two non-interventionist schools are equally subject to the foregoing criticism. Additionally, both schools may be criticized for adhering

to a precious metal standard which may ultimately lead to a gradual increase in the PPM. Should businessmen and wage earners fail respectively to realize that real profits and wages may be increasing, while nominal profits and wages are constant or decreasing, unsold inventories and a high level of unemployment may result (at least temporarily).

Ultimately the non-interventionist position rests upon a value judgment. Advocates believe that if a central authority is empowered to control the quantity of money; and legal tender laws exist which require the usage of state-issued money, then the state will use this power to expropriate the wealth of its citizens. They believe that even the best-intentioned of political officials will ultimately yield to the temptation to expand the money supply in order to achieve political goals. The current (1976) Presidential Economic Advisor, Alan Greenspan, clearly identified the issue of values in the following terms (32:89-95):

...antagonism toward the gold standard is one issue which unites statist of all persuasions. They seem to sense--perhaps more clearly and subtly than many consistent defenders of laissez-faire--that gold and economic freedom are inseparable, that the gold standard is an instrument of laissez-faire and that each implies and requires the other....In the absence of the gold standard, there is no way to protect savings from confiscation through inflation. There is no safe store of value. If there were, the government would have to make its holding illegal, as was done in the case of gold... The financial policy of the welfare state requires that there be no way for the owners of wealth to protect themselves....Deficit spending is simply a scheme for the "hidden confiscation" of wealth. Gold stands in the way of this insidious process.

It stands as a protector of property rights. If one grasps this, one has no difficulty in understanding the statist's antagonism toward the gold standard.

"Statists," in the sense in which Greenspan employed the term, are simply individuals who believe that the government should have over-riding authority to define goals and make decisions. Greenspan believes that an objective (as opposed to fiat) monetary standard is necessary to protect individual liberty, a condition which he apparently deems desirable. Mises expressed a similar view in the following quotation from Human Action (52:475):

What the expansionists call the defects of the gold standard are indeed its very eminence and usefulness. It checks large-scale inflationary ventures on the part of governments. The gold standard did not fail. The governments were eager to destroy it, because they were committed to the fallacies that credit expansion is an appropriate means of lowering the rate of interest and of "improving" the balance of trade....

The struggle against gold which is one of the main concerns of all contemporary governments must not be looked upon as an isolated phenomenon. It is but one item in the gigantic process of destruction which is the mark of our time. People fight the gold standard because they want to substitute national autarky for free trade, war for peace, totalitarian government omnipotence for liberty.

The same implicit value judgment is apparent in the views of Mises: that government priorities and goals are not as important as a world community of free trade and individual liberty. Thus the Austrians believe that governments should not be permitted to expand the money supply in order to achieve their goals, whether welfare or warfare, and perceive the gold standard as a means of frustrating

government attempts to do so.

Interventionist Monetary Policies. In the preceding section it was suggested that the question of regulating the money supply to prevent inflation, or for any other purpose(s), was ultimately reducible to a value judgment. Those who reject coercion in any form in interpersonal relations necessarily adopt the position that the kind and quantity of money should be determined by the market. Those who value, as an extreme position, complete centralization of decision authority, necessarily hold the view that the kind and quantity of money should be decreed by the state. Most individuals choose some intermediate position on this value scale. They advocate intervention which seems favorable to their own goals and which may, or may not, promote the goals of others.

In the spectrum of interventionism, Friedman is very close to the non-interventionists except with respect to his views on regulating the quantity of money. Keynes' position, at least as presented in the General Theory, represents a further move in the direction of statism. Keynes advocated monetary and fiscal intervention to achieve specific goals, the dominance of which may have a significant impact on regulation of the money supply.

Within the context of the General Theory, the quantity of money is simply not a matter of great concern until conditions of full employment and maximum utilization of productive capacity exist. Once these conditions have been

established, the Keynesian concept of "true inflation" merges with the classical quantity theory.

This lack of concern about the quantity of money was expressed in satirical form by Keynes as follows (40:235):

Unemployment develops, that is to say because people want the moon;--men cannot be employed when the object of desire (i.e. money) is something which cannot be produced and the demand for which cannot be readily choked off. There is no remedy but to persuade the public that green cheese is practically the same thing and to have a green cheese factory (i.e. a central bank) under public control.

The problem with the Keynesian view is that, unlike the hypothetical green cheese factory, a central bank does not require some finite amount of input which serves to limit its output. Accounting entries may be made to any nominal sum of money desired by the banking authority. Thus the quantity of fiduciary media placed in circulation is subject only to the statutory (if any), political and judgmental constraints on the central bankers.

Assuming that the central banking authority adopts some kind of criteria of full employment and maximum utilization of productive capacity, these criteria must ultimately be expressed in terms of a set of statistical parameters of proxies. It is possible to identify the requirements which must be satisfied for the employment-production criteria to serve as effective constraints on the growth of the money supply:

1. There must actually exist a determinant relationship between the supply of money, the level of employment and the utilization of productive capacity, as Keynes asserted.

2. This relationship must be reasonably well understood and modeled in terms of appropriate statistical proxies.
3. The relationship must either be constant or changing in some readily detectable fashion so that the statistical model may be maintained in close accord with the state of the economy.

Unless these requirements are to a large extent satisfied, there is a distinct possibility that, in the absence of additional constraints, growth of the money supply will proceed without limit. In brief, the Keynesian model offers no assurance that the supply of money is, in fact, limited.

Keynes believed that in the short run the effect of an increasing supply of money upon prices is not readily predictable unless full employment exists. After manipulating symbols representing respectively the quantity of money, the income velocity of money, effective demand, liquidity factors, prime cost factors and physical factors (relating employment to productive capacity in terms of output), Keynes observed (40:305):

I do not myself attach much value to manipulations of this kind; and I would repeat the warning, which I have given above, that they involve just as much tacit assumption as to what variables are taken as independent...as does ordinary discourse, whilst I doubt if they carry us any further than ordinary discourse can. Perhaps the best purpose served by writing them down is to exhibit the extreme complexity of the relationship between prices and the quantity of money, when we attempt to express it in a formal manner.
(Underlining is by the writer)

Keynes' view of the short term relationship between prices and the quantity of money is not markedly different from those of Friedman, the Austrians, or the classicists.

All acknowledge that it is extremely complex if not completely unpredictable.

Naturally modern economists who, like Keynes, emphasize the desirability of full employment and maximum utilization of productive capacity (pages 108 and 228 for example) would argue that the existence of an unacceptable inflation rate is, *prima facie*, evidence that the money supply has grown too rapidly. Therefore the maintenance of some degree of price index stability, if adopted by central bankers as an additional goal, would serve to constrain the money supply. Thus price data could theoretically be employed as a feedback device which would then be adjusted for appropriate lags to project and plan the future monetary growth rate in terms of desired outcomes. This approach is very close to that of certain monetarists who advocate fine tuning of the economy.

Arguments for regulating the quantity of money in order to achieve some mixture of full employment, maximum output and price stability are not theoretically refutable on economic grounds. Whatever one ventures as an objection to the argument can ultimately be disposed of by the simple question, "But why can't the banking authority take that factor into account?" For example, if one suggests that a price index is inherently arbitrary and unreliable, then the obvious solution is to improve the price index. The argument can only be dealt with by recognizing the implicit underlying premise which is: given perfect knowledge, anything

may be achieved. This premise may be challenged as tautological. Knowledge is, in application, the mental ability to solve problems. Perfect knowledge is, by definition, the mental ability to solve any problem. If there were a problem which one could not solve, then one would not possess perfect knowledge. This circular form of reasoning may lead to interesting debate but it does not address the central issue of whether a small group of people (in this case the central banking authorities) possess adequate knowledge to be charged with the responsibility of attempting to achieve "desirable" or "optimal" social outcomes.

Friedman argues that the required knowledge is not at present available (page 238). Hence attempts to achieve certain outcomes through a discretionary monetary policy ought to be abandoned and a rigid mechanism for increasing the money supply should be installed. This proposal actually involves intervention to the same extent as any Keynesian or discretionary monetarist recommendations. In a sense it may be characterized as blind monetarism, likely to achieve no particular goals but those of its advocates. There are numerous questions which might be raised concerning such a rigid policy. To mention only a few:

1. How would one introduce the newly created money into the economy in some neutral fashion; that is, so it would neither distort the market interest rate structure nor transfer wealth to early recipients?
2. What would be the effect on prices if for some reason total output were to change for a lengthy period?

3. Can one really imagine that a rule governing the quantity of fiat money would be less difficult to waive in time of "national emergency" than the gold standard?

These questions are not intended to suggest that such a policy could not be made to work. Certainly it could--at least for a time. It simply is not apparent that a fixed rate of expansion is either less arbitrary or more inclined to bring stability to the economic system as a whole than a discretionary rate. Perhaps more knowledge would be needed before committing a nation to this kind of monetary policy than is required by a contingency or discretionary policy.

There is a more pressing question than those already mentioned that needs to be answered. The definition of money in the broad sense is not significantly less arbitrary than price indices or full employment, particularly in a pure fiat money system. Friedman has performed the major part of his analyses on data covering a period when the world was more or less on a gold standard and one could speak in terms of money stock in a reasonably specific sense. It is possible that, with the total severance of the link of the dollar with gold in 1971, an entirely different kind of not so readily identifiable money supply came into existence.

This possibility should not be ignored. Since the present international monetary system is such a recent development, all one can do is guess how the way people think about money--the things which they count as money--may be changing. When the circulating medium no longer offers much hope of storing value over time, people become

increasingly reluctant to hold non-interest bearing cash balances. They seek either interest or paper of reasonable liquidity and appreciation potential rather than bank notes and demand deposits. This demand is met by financial institutions and commercial banks by making it technically more easy to convert from interest-bearing paper to demand deposits.

In the international exchange markets, much the same situation arises. As soon as interest rates fall slightly in one country a rush develops to convert to interest bearing instruments in another country. The pound sterling is a recent casualty of this process. In order to support the international purchasing power of the pound, Great Britain has been forced to tolerate or encourage high domestic rates of interest and to borrow large sums from countries with stronger currencies.

Both international and domestic financial markets have been extremely volatile in terms of interest rates and cash flows with disintermediation a constant threat to both government and private institutions. It is not clear in this kind of monetary environment which particular credit instruments (for example, Federal Reserve notes, E-Bonds, or municipal bonds) ought to be counted as money, or near money, and which ought not. The central banking authority may be faced with a problem of constantly changing monetary proxies (M1-M7 for instance), never certain which one (or weighted combination) is most

appropriate for the moment.

There is no escaping the fact that with each step away from the international gold standard, the unknowns loom larger and become more numerous. The monetary experiments of the twentieth century seem ever more "experimental" in nature. It is not possible to predict the outcome of a new experiment with fiat money, occurring as always, under somewhat unique circumstances and at a different level of human knowledge. By examining certain policies as they have been implemented in different historical contexts, however, it is possible to suggest that particular outcomes are highly likely. For this reason the section which follows is intended to relate the different schools of thought to the data base material on inflation and fiat money presented in Chapters II through VII.

Historical Applicability and Forecasting Implications

In the classical view, money is a commodity the purchasing power of which is determined in the short run by demand and supply and in the long run by the cost of production. Since gold and silver gradually evolved as the monetary commodities through years of market operation to eventually become the standard of value in all civilized countries, they serve to indicate the extent to which the purchasing power of the circulating medium in any society has been depreciated (page 177).

The classical view of secular inflation is simply one of progressive debasement of the medium of exchange. The price of the original standard unit of monetary metal, when expressed in terms of the current unit, serves to indicate the extent of debasement. Data from the Roman inflation to the time of Diocletian (300 A.D.) are not adequate to afford any quantitative test of this hypothesis. All that one can say is that standard gold and silver coins had to be used in international trade (page 25) and seem to have maintained their purchasing power. The debased Roman denarius lost purchasing power to the extent that price fixing was instituted in an attempt to pacify the Roman consumers.

During both of the 18th century inflations in France, the original gold and silver coins maintained their purchasing power while prices in terms of paper currency increased literally without limit. Table I (page 41) indicates that the percentage price increase of the standard 25 franc gold coin over a five-year period was approximately the same as the average increase in selected commodities. When these inflations subsequently ended, the specie standard was reinstated as the basis for the new monetary systems.

Prior to the experience with greenbacks, quantitative data are not available on the depreciation of paper money relative to specie in early America. Repeated experiments in the issue of paper money, however, tended to confirm the

classical view that depreciation would occur if the paper were irredeemable. America's experiment with the greenback, a fiat money which constituted only a part of the national money supply, offers an interesting demonstration of the classical hypothesis. Table II (page 54) reveals that over a 19-year period, the annual percentage change in the greenback price of the monetary metal (gold) corresponded closely with the annual percentage change of commodities prices. When convertibility was resumed, the relative value of commodities and gold was practically unchanged from the pre-greenback level. Thus the entire inflation appears to have occurred in the inconvertible currency exactly as the classicists would predict.

Daniel Webster was apparently an American adherent to the English classical economics. In 1815, he provided a very accurate description of what would occur under circumstances similar to those of the greenback experiment nearly half a century later. The following passages from the text of Webster's 1815 speech (pages 72-74) typify the classical thinking:

...Whenever bank-notes are not convertible into gold and silver at the will of the holder, they become of less value than gold and silver...The depreciation may not be sensibly perceived the first day, or the first week, it takes place. It will first be discerned in what is called the rise of specie; it will next be seen in the increased price of all commodities....something must be discovered which has hitherto escaped the observation of mankind before you can give to paper intended for circulation the value of a metallic currency, any longer than it represents that currency and is convertible into it...

According to Table II, gold rose more rapidly than other commodities in terms of greenback price from 1862 to 1864. By the first quarter of 1864, however, other commodities had appreciated by the same percentage. As plans for resumption of convertibility were made, the price of gold fell rapidly while the price of commodities remained relatively high for a time as a result of persistent speculation or an actual scarcity of goods.

A similar sequence of events occurred quite recently. Following the establishment of the Two-tiered Gold System in March, 1968 (page 120), the market price of gold fluctuated between \$35 per ounce (the official price) and \$40 per ounce. Shortly after total suspension of convertibility in August, 1971, the price of gold began to increase rapidly and reached a level twice that of the official price in August, 1972. The Department of Labor Wholesale Price Index, however, did not begin a sharp uptrend until the last quarter of 1972. The pattern of the gold price leading and commodities following had once again conformed to the classical expectations.

Naturally there is a substantial degree of arbitrariness in the application of the classical depreciation criterion over an extended period. One cannot realistically evaluate the effects on gold production of gold ownership prohibitions and attempts to suppress the market price. Probably the overall effect has been to depress production somewhat below the free market level. If this is true,

then one might expect the current market price to exceed that which is necessary for purchasing power preservation.

Based upon the price level which existed in 1934, shortly after the domestic prohibition on gold ownership in America, Friedman has calculated that a 1975 gold price of \$128 per ounce would mean that the 1934 purchasing power of gold had been maintained (20:94). The average price of gold in 1975 was actually \$161 per ounce, probably reflecting substantial speculative demand. Under the depressing influence of gold auctions by the United States Treasury and the IMF, the gold price reached a low of \$105 per ounce during the third quarter of 1976. Hence, based upon the classical depreciation criterion, the 1976 dollar had depreciated to between $1/3$ and $1/4$ of its 1934 value, a reasonable approximation of the actual decline in purchasing power as measured by the CPI.

Applying Friedman's ratio to silver which was officially priced in 1934 at \$1.29 per ounce, one arrives at a 1975 price of \$4.72 per ounce for preservation of purchasing power. The 1975 average price was actually \$4.42 per ounce indicating a depreciation which falls within the same range ($1/3$ to $1/4$).

The forecasting implications of the classical criterion are not easily specified. All one can say is that over the long run, the gold price will probably serve as a crude indicator of inflation. A rapid rise in the

price of gold is apt to presage a rise in the general price level within a few months. Goods and services identical to those offered for sale in 1934 which have not yet approximately tripled in price, may have lagged behind the market because of certain institutional rigidities (long term contracts, for example). If demand and production technology have remained essentially unchanged these may move suddenly to the general price level as the rigidities are overcome.

The effects of various official attempts to suppress the price of gold, in such forms as auctions, confiscations and ownership prohibitions, will be superimposed upon the probable long term uptrend. Additionally, a decision on the part of monetary officials to reduce the rate of fiat money issue may cause a temporary scarcity of legal tender and a rapid decline in the price of gold. Despite the temporary fluctuations, classical theory implies that the price of gold will continue to increase (the PPM will continue to decline) as long as debasement continues.

Austrian School. The Austrians do not consider the comparison of values across time as any more meaningful than the comparison of values between two individuals. Thus the present prices of any selected group of commodities in terms of either gold or fiat money are simply facts and the relation of present prices to those of the distant past is not particularly significant. In the Austrian

view, the significant fact is that the world is presently on a credit money system and that a great credit expansion has been in progress for four decades.

The data base treatment of money and inflation (Chapters II-VIII) tends to confirm the Austrian views, particularly with respect to the existence of credit expansion. Credit expansion, as the mechanism of modern inflation, may also be viewed as a specific kind of debasement within the classical framework. In this kind of debasement, the supply of circulating credit, in the form of demand deposits and paper money, increases more rapidly than the monetary metal--in the twentieth century, gold. Thus Mises views the progressive removal of constraints upon credit expansion summarized on page 202 as part of the "struggle against gold" (page 248).

Throughout history, as the data base demonstrates, governments have debased money in their attempts to promote prosperity, transfer wealth and finance wars. In general, debasement is a mechanism for diverting real wealth from private to public purposes. This process has been traced in detail throughout American history from the time of the early colonies (pages 46-51) through 1972 (pages 140-47). The history of money and inflation also indicates that the general public is either indifferent to or actively supports increases in the supply of money until the point is reached where prices begin to increase at an alarming (by public estimate) rate.

At this point, monetary authorities face a difficult choice. They may persist in their expansionist policy and incur what seems historically to be the inevitable consequence, a flight from currency; or they may choose to limit their issues and reestablish convertibility into precious metals. This is, in essence, the Austrian view and historically there seem to be no further long-run alternatives. Pledges to limit the supply of fiat money have always yielded to the necessities of the moment and such systems have simply not survived any great length of time despite the imposition of wage and price controls, currency exchange regulations, trade barriers and extremely harsh legal tender laws.

Where pure fiat moneys have been introduced on some vague promise to redeem eventually in land or specie, as in the case of the assignats or continentals, they have survived only briefly; generally on the order of five years. In the more common case of gradual debasement, the process seems to end shortly after the debasement is completed (as in the case of the Roman denarius or the German mark) with a flight from currency. As far as could be determined on the basis of thesis research, debasement has always ended ultimately in either the total loss of purchasing power of the circulating medium, or a return to some form of precious metal convertibility.

The Austrian concern is that present experiments

with fiat money will simply confirm the hard lessons learned in the past. If the concern proves justified, then the individual who is not reluctant to learn from either history or somewhat unconventional points of view will be much better prepared than his contemporaries to understand the existing economic situation. He will expect to see increasing instability in international exchange rates, the imposition of an assortment of wage and price controls, acceleration of inflation and increasing difficulties in economic forecasting. As various interim measures are taken to solve the problems which are symptomatic of the underlying monetary malady, he will not be deluded into making unwarranted assumptions about future stability, but will expand the scope and depth of his contingency plans and develop a greater sensitivity to changes in economic data.

Of course the Austrians' concern may well prove unwarranted, meaning that human behavior and institutions have altered substantially and that the contemporary fiat money experiment will be a success. In that event nothing will have been lost for the individual who is aware of the possibilities of failure but the brief time spent in studying the Austrian and classical theories.

Keynes' Theories. The General Theory has been characterized in Chapter IX as a special purpose treatise, designed for a period of extremely high unemployment during a depression. The ideas presented in the General Theory are

not difficult to identify in historical application. From the time of the Roman Empire to the present, stimulative monetary policies have been employed, in part, as a means of bringing temporary prosperity to a nation.

The theories of John Law (page 29) are really quite similar to those which appear in Keynes' General Theory. Writing at a time of high unemployment, Law urged the issue of credit money as a means for restoring full employment. To accomplish this, the banks of France were to issue a suitable quantity of paper money.

Undoubtedly Keynes was quite familiar with Law's theories and the French experiments with paper money inflation. Perhaps he consciously invoked Law's prescriptions and simply stated them in more sophisticated form in order to accomplish his immediate purpose.

Keynes believed that in the long run the trend of wages and prices would be toward ever higher levels. The reason for this upward bias is, according to Keynes, the unpopularity of falling wages and prices (40:307):

But if the quantity of money remains very deficient for a long time, the escape will be normally found in changing the monetary standard or the monetary system so as to raise the quantity of money, rather than in forcing down the wage-unit and thereby increasing the burden of debt. Thus the very long-run course of prices has almost always been upward. For when money is relatively abundant, the wage-unit rises; and when money is relatively scarce, some means is found to increase the effective quantity of money.

Monetary history justifies Keynes' belief. However large the supply of money in a given society, there have

always been complaints that money was too scarce, interest rates were too high and the burden of debt was too heavy. Except for the Byzantine Empire (page 26) and some relatively brief periods in history, some means has always been found to increase the effective money supply, at least temporarily.

The important point is that the destruction of the mercantilist fallacy of equating more money in some way with more real wealth, was a central aim of the classical economists. By demonstrating the true nature of money as simply a means for effecting the transfer of wealth, the classical economists hoped to eliminate the various practices which had historically proven so destructive of sound and stable commerce.

Keynes provided a rationale for doing what many people wished to do. He sanctioned the practice of debasement and, in so doing, helped to institute a policy that in the long run would lead to an age of inflation.

In fairness to Keynes, his views on debasement ought to be considered apart from the specialized context of the General Theory. In a treatise entitled The Economic Consequences of the Peace (1920), Keynes wrote (41:235-37):

Lenin is said to have declared that the best way to destroy the Capitalist System was to debauch the currency. By a continuing process of inflation, governments can confiscate, secretly and unobserved, an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate arbitrarily; and, while the process impoverishes many, it actually enriches some. The

sight of this arbitrary rearrangement of riches strikes not only at security, but at confidence in the equity of the existing distribution of wealth. Those to whom the system brings windfalls...become "profiteers," who are the object of hatred of... (those) whom the inflationism has impoverished.... As the inflation proceeds...the process of wealth-getting degenerates into a gamble and a lottery.

Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million is able to diagnose...

In the foregoing quotation, Keynes expressed views which are in close agreement with those of the classical and the Austrian economists. The terminology "debauch the currency" was simply a popular way of speaking of debasement at the time Keynes wrote. The data base confirms each point made in this quotation except, of course, the references to Lenin. As Keynes observed, "not one man in a million is able to diagnose" the true nature of the debasement process.

Monetarist School. In comparing the different views on inflation to this point, considerable attention has been devoted to the practice of debasement. This is the inevitable result of examining monetary history over a lengthy period and of focusing on the ideas of economists who have been very concerned about credit expansion and debasement. Actually, apart from the contemporary Austrian school economists and a few "old school" international monetary experts, one rarely encounters any discussion of debasement in contemporary treatises or discussions of inflation.

Although a pure international fiat money is really a recent development (1971) as the reader has seen, the precious metals have been popularly consigned to the dust bin of monetary folklore by most modern economists. Most have adopted the monetarist propositions (page 235) to some extent and the only distinction between Keynesians and monetarists today is the relatively greater emphasis placed on the efficacy of government fiscal policy by the Keynesians.

The Austrians continue to think of gold as the world's money and view credit money as a somewhat precarious superstructure erected upon a foundation of gold. Keynesians and monetarists accept fiat money as money and regard gold as a monetarily useless commodity which should be sold from government stockpiles in order to realize a profit from the current high prices.

Thus Friedman has said (20:92-3):

We might be very well advised to sell off some of our gold at the present price of \$150 an ounce. That would get rid of a frozen asset and might enable us to turn Fort Knox into some useful purpose...I do not believe that you can have a viable gold standard without private ownership and the right to convert paper into gold, on demand. I do not see any chance whatsoever of the U.S. Government being willing to do that, or any reason why it should be willing to do it.

Friedman employs a kind of operational definition of money which varies with the context and his analytic purpose. It is not at all clear how one "ought" to define money in the modern state. Edward S. Shaw has

stated the problem as follows (38:87-9):

It is almost true that everyone rolls his own definition of money and has his own rules for measurement of the money supply. Federal Reserve people are noncommittal, and in the representative Federal Reserve Bulletin offer no tabulations headed Money or Supply of Money. Their essays about money coat the term with a film of adjectives--"active" money, "relatively active" money, "inactive" money. Our central bank cultivates uncertainty even in monetary semantics....Modern money is a debt, differing from other forms of debt in that its price does not vary...Textbooks classify our money as "token" money, to distinguish it from fragments of one commodity or another that people have used, in other times and places, as fixed-price means of payment....The money we are discussing is nominal money--the face value of the monetary system's debt.

Despite the difficulties in defining the money supply under a system of credit money, various proxies (principally M_1) have been successfully employed by monetarists to demonstrate the proposition that the fundamental rate of inflation reflects the long-term rate of monetary expansion. For example, Denis Karnosky has shown that despite the assortment of wage and price control measures instituted in the 1971-74 time period and the imposition of an oil embargo, the inflation rate subsequently returned to the path dictated by the underlying rate of monetary expansion (39:18-9).

Writing in the June 1976 issue of Review, a publication of the Federal Reserve Bank of St. Louis, Karnosky argued (39:17-8):

Thus inflation, as a continuing increase in the general level of prices, is a manifestation solely of a persistent excess of money supplied at existing prices, and the money supply, in turn, is the result of actions by the monetary authorities.

The Economics Group of The Chase Manhattan Bank has demonstrated a close relationship between the growth of the broad money supply (M_2) plus Eurocurrencies and a World Price Index over the period 1967-75 (54:2-3). There is a rapidly developing consensus among modern economists that over the short term numerous factors interact to cause fluctuations in the inflation rate, but over the long term the inflation rate is determined by the rate of monetary expansion.

Thus monetarists are seen to be in essential agreement with the other economic schools that the ultimate responsibility for inflation devolves upon the central banking authorities. An interesting question arises if one attempts to apply the long-term classical determinant of the PPM: the cost of production. What is the long-term cost of production of credit money and what does this imply for the value of money? One must adhere to the idea that the classical determinant only applies to commodity money or that central bankers will correctly assess actual costs in order to arrive at a reassuring answer to this question.

Looking upon money as debt rather than as a real commodity accounts for much of the divergence between interventionist and non-interventionist views of monetary history as well as the current monetary system. A statement such as that by Friedman that the Great Depression was produced by the Federal Reserve's "recklessness in destroying money" (20:92) would have been interpreted by the classical

economists as the destruction of gold, a difficult feat to accomplish. Gold may change hands, or be lost, but it is not often destroyed.

A credit or token money, however, can be destroyed. Most modern economists have, in the manner of Friedman, assumed that central bankers will limit their issues and the current credit money system will endure--although with possible minor changes. One cannot find historical support for this assumption. This does not mean that the assumption will not hold in the future, but that it is certainly subject to question.

Perhaps present knowledge has reached a state where credit liquidation or over-expansion can (and will) be avoided by judicious application of control techniques by central authorities. If so, the fundamental rate of domestic inflation will probably reflect the long-term rate of monetary expansion as monetarists would predict.

Inflation Forecasting: A Caveat

There is a certain kind of "gamesmanship" which this writer has observed in watching various stock and commodity forecasting services perform through the years. The "game" begins with a study of price data over a period of time--generally, the longer, the better. The price researcher then discovers (by luck, inspiration or systematic analysis) that in the past, prices were always closely related to one or more parameters such as trading volume, interest rates, phases of the moon etc. He then incorporates the particular

relationship in a price forecasting model and demonstrates how employment of this model would have enabled an investor to quickly acquire a fortune over a relatively brief period at numerous points in the past.

As a refinement of the game, the forecaster may contrast predictions that could have been made on the basis of his improved model with those of intellectual or business rivals whose models have failed to yield accurate forecasts. For example, the forecaster's improved model correctly reflects that the current price of wheat is six dollars per bushel whereas the forecasts of his rivals all indicated that the present price would be only three or four dollars. This practice is very convincing, particularly for newcomers to the art of price forecasting--a fact partially evidenced by the popularity of investment advisory services. These services especially multiply and prosper during periods of constantly rising prices when optimistic forecasts are most often realized.

With the growing concern over problems caused by inflation, there are signs that this kind of practice is becoming popular in the area of inflation forecasting as well. (For example, see 11:Table 2) If there is one message in the writings of the representatives of the different economic schools of thought presented in this thesis, it is that individual prices and the general level of prices are not the result of any simple historical or immediate determinants. They are the result of a complex and ever changing

interplay of factors, one of the most unstable of which is human behavior. Fortunately, in a reasonably stable monetary environment of the kind which has existed in much of the Western World for the past half century, it is possible to extrapolate existing trends with a fair degree of success in long range forecasting and planning. However an inflationary environment is not, historically at least, very stable. At a time when dependable models are needed most, they seem to be the least available.

There is a resultant tendency to produce a multitude of models that fit the historical data beautifully (they were so designed) but which fail miserably when employed for forecasting. As explanations for the failures one is then likely to hear that a series of unforeseen "shocks" to the economy have occurred. Basically, such apologies take the form of the plea: "Who could have foreseen that such and such would occur?" Thus one hears of crop failures, energy crises, embargoes, grain shipments, strikes, anchovie migrations etc. offered as explanations for model failures. Unperceived, or unadmitted, is the fact that any model created on the basis of historical data is hardly better than a guess in an unstable monetary environment. Forewarned, the financial planner can take a much more realistic attitude toward long-term forecasts of specific or general prices.

The foregoing discussion is not meant to disparage the gathering of historical data and the creation of current information feedback systems; these are essential. They are

the best hope for dealing with monetary instability. The discussion is to warn that in an unstable monetary environment models which purport to predict future prices over a span of two or more years on the basis of the past should be viewed with a substantial degree of skepticism.

Credit money systems are inherently subject to massive expansions or liquidations and either process has a profound effect upon prices as the reader has seen. Neither of these processes has proven to be consistently predictable in practice. They depend upon political considerations and international events as well as public anxieties and expectations (among other factors) none of which follow any demonstrably uniform pattern. This is the reason why, historically, fiat money systems have not survived. Keynes captured the essence of the problem in his observation that "the process of wealth-getting degenerates into a gamble and a lottery" (page 267).

If the present international monetary system proves viable and the instability of the past few years has simply been symptomatic of an early process of adjustment, then the financial planner will shortly find that traditional methods of forecasting will once again serve adequately. If history repeats and the present system of credit money follows the course of its predecessors, the financial planner cannot realistically hope to forecast either prices or availability of materials beyond the range of a year or so. If he is to be successful in his endeavors, he must develop a contingency

approach; closely monitoring the appropriate economic data and sensitive to the slightest need for adopting an alternate course of action.

By understanding the mechanism of inflation, from whichever point of view he finds most applicable and promising among the four schools of thought presented in this thesis, the financial planner should be better able to cope with his particular set of problems. It is not possible to specify in advance the particular parameters applicable for any one planning task. One person may need to monitor M_1 or the GNP deflator and interest rates, while another will be most concerned with currency exchange rate fluctuations. Whichever parameters prove of most significance in a particular endeavor, the planner needs to be able to make a fairly realistic appraisal of overall monetary stability. It is hoped that some of the ideas and viewpoints suggested in this thesis will be of assistance in this formidable task.

XI. Summary and Conclusions

Debasement of the monetary standard has been employed since the time of Ancient Rome as a device for the surreptitious transfer of real wealth. One effect of debasement is a decrease in the purchasing power of money. This decrease in purchasing power is experienced by those who hold the debased money as an increase in prices to a higher general level than would exist under the original standard. When the price increases become apparent, that is when nominal prices are visibly increasing, the condition may be described by the more recently employed term "inflation."

Debasement may be accomplished by reducing the monetary-metallic content of circulating coinage or; where money substitutes such as paper money, tokens, or demand deposits are employed, by creating a nominal amount of these substitutes in excess of the existing stock of monetary metal. The process of debasement is complete when the coins or substitutes no longer contain or represent any specific amount of the original monetary metal. At this point the circulating medium may be classified as fiat or credit money. Fiat money is so-named because it is no longer subject to the constraint imposed by the natural scarcity of monetary metals, but may be created to any nominal amount at the discretion or fiat of the issuer.

Many experiments have been conducted with fiat money throughout recorded history in diverse locations and

civilizations. Such experiments have always ended with either a complete loss of purchasing power of the fiat money or the restoration of its convertibility into monetary metal. In attempting to make fiat money systems work, governments have traditionally employed such measures as wage and price controls, currency exchange controls, prohibitions on the possession of precious metals, and extreme penalties for refusing to accept the money in exchange for goods or services. None of these measures have proved successful for more than brief periods.

Throughout history both privately owned banks and agencies of the state have practiced debasement by issuing money substitutes in excess of the stock of monetary metal in their possession. Debasement, when practiced by state or privately owned banks, is known as fractional reserve banking. The statutory or market constraints that determine the stock of monetary metal which must be held as a basis for the issue of a certain quantity of substitutes constitute the reserve requirement of the bank or banking system. When a banking system is required by statute to operate on a 100 per cent reserve basis and banks are the sole source of money and substitutes, it is not possible to legally debase the monetary standard.

When fractional reserve banking is permitted and the banking system consists of a number of independent

banks each of which issues its own substitutes, the bankers must maintain sufficient reserves of monetary metal to meet the demands for redemption of their substitutes by clients and banking rivals. To the extent that these market constraints on the issue of substitutes can be weakened by eliminating competition, monopolizing the issue of substitutes and discouraging bank runs, a greater expansion of money substitutes can occur; that is, the greater the potential for debasement in the system.

The expansion of money substitutes transfers wealth from the holders of those substitutes to the issuers and to net debtors. If the issue proceeds to a point such that convertibility into monetary metal can no longer be maintained, the substitutes must either be devalued to a sustainable level in terms of the monetary metal or the substitutes become pure fiat or credit money until such time as convertibility is restored. Restricting convertibility of substitutes to selected holders may be employed as a temporary expedient to delay total suspension.

Most of the world's current assortment of paper currencies, including the United States dollar, have undergone this process of progressive debasement. The gradual evolution of the dollar from a specified weight of 90 per cent pure gold to a pure fiat or credit money (1971), is traced in detail in Chapters III through VI of this thesis. These chapters also detail the progressive

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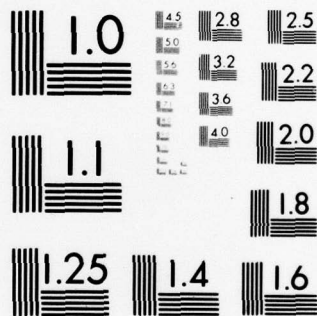
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institutional and legislative changes which were a crucial part of the evolutionary process.

Chapter VII is a discussion of the motives for, and the mechanism and effects of, injecting additional credit money into the American economy. This discussion also relates post-1971 domestic developments to the international system of floating currencies.

Chapter VIII contains a development and analysis of the non-interventionist models of inflation. Two non-interventionist schools of thought are presented: the classical and the Austrian. Extracts from the writings of representatives of these schools are quoted and discussed in developing each of the two models.

In Chapter IX two interventionist models of inflation are developed, the Keynesian and monetarist models. The Keynesian model of inflation is shown to have been intended by Keynes for application within a specific economic context. Current inflation is seen in part to be the result of misapplication or inappropriate use of Keynes' ideas. The monetarist model of inflation is shown to be essentially a reinstatement of the importance of the quantity of money in determining the long-term general level of prices.

Chapter X is devoted to relating the different schools of thought to each other in order to develop a basic understanding of inflation. The different models are compared in terms of their past, current and probable

future applicability. The implications of the different models for the financial planner and cost analyst are also discussed in general terms. Chapter X is sufficiently detailed to provide an overview of inflation for the reader who is already conversant with monetary terminology and background and who does not desire to review the detailed research and supporting material presented in the earlier chapters.

Conclusions

At present (1976) the different national and international currencies of the world, including the dollar, are correctly termed fiat or credit money. Since there are no physical constraints upon the issue of fiat money, the central banking authorities tend to issue excessive amounts in order to achieve various economic goals and to finance national programs. Excessive issues of fiat money result in a decline in purchasing power, popularly termed inflation.

In the view of the classical economists, secular inflation results from the progressive debasement of the monetary standard. When the standard monetary unit has been completely debased, the resultant fiat money will not, in the classical view, provide the basis for a viable monetary system.

The Austrian economists maintain that contemporary inflation is the result of excessive credit expansion.

They believe that if the expansion proceeds much further, the monetary system may collapse either through liquidation of large amounts of credit or a flight from money. In the Austrian view, unless dollar convertibility into gold is reestablished, the dollar will eventually lose all purchasing power. The Austrians do not believe that it is possible to forecast the timing of this loss of purchasing power.

The theories of Keynes have been applied outside of the special purpose context for which they were intended. As a result of the misapplication of Keynes' theories, there has been a sustained credit expansion of which inflation is one manifestation. The monetarist school correctly associates inflation with this underlying monetary or credit expansion, but does not question the inherent viability of a fiat money system as do the Austrians.

Unless convertibility of the United States dollar is reestablished at some realistic level in terms of gold, or some means is found to stabilize the rate of monetary expansion, economic instability is likely to increase and economic forecasting to become progressively more difficult and unreliable.

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The historical data base thus developed is used as a referent for analysis and comparison of theoretical models of inflation suggested by four schools of economic thought: classical, Austrian, Keynesian and monetarist. The four models are compared in terms of explanatory value, historical accuracy and predictive value. The way in which the models are interrelated is discussed in order to provide an overview of contemporary inflation. Some prognoses by proponents of different schools of thought are quoted and discussed. The report concludes with an inflation forecasting caveat for the cost analyst and financial planner.

David B. Lang

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